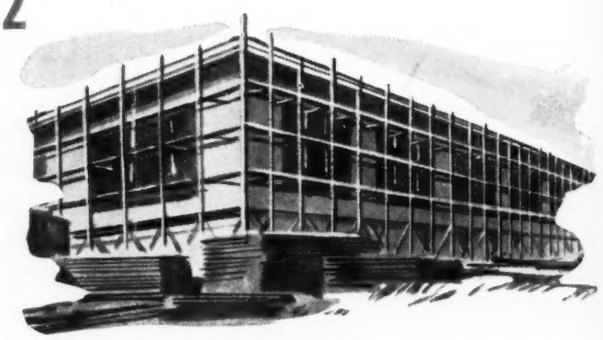
Architectural
Library
JAN
2

Will Construction furnish the **POST-WAR "CUSHION"?**

1

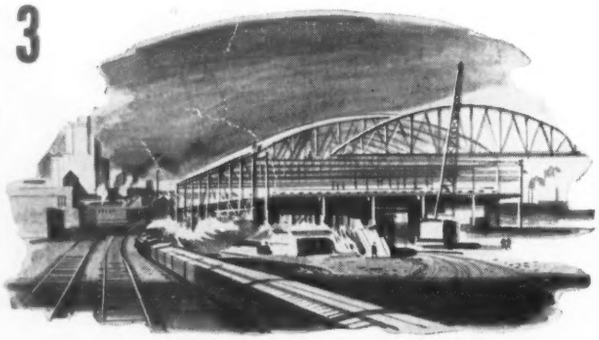
It is estimated that the people who will be engaged directly and indirectly in construction and building may be two millions *more* in the post-war period than there are right now.

2



Total new construction of all kinds may run as high as ten billion dollars.

3



New industrial construction of around three-quarters of a billion dollars has been predicted.

4

Commercial construction may be as much as five times as great as it was in 1933.

5

In planning for all this activity, remember that nothing in peace or war has produced any roofing or waterproofing that exceeds coal tar pitch and felt for durability, effectiveness and low maintenance.

Coal Tar Roofing
Coal Tar Waterproofing

Koppers Company and Affiliates, Pittsburgh, Pa.

KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY

New Pencil Points, December, 1943

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COVER: Carl Milles' "Folke Filbyter" at Cranbrook (Hedrich-Blessing Photo)

Next Month:

In January, 1944, NEW PENCIL POINTS will present an issue devoted chiefly to housing. One of the most notable examples the Editors have come across is Valencia Gardens, a USHA slum clearance project in the heart of the Mission district in San Francisco. Harry A. Thomsen, Jr. and William Wilson Wurster were the architects. Valencia Gardens, on which design work was started in 1939, was completed in May, 1943. Because of the war, only war workers could be accepted as tenants, although it had originally had no restrictions other than those common to USHA projects.

It is a large project, with 246 dwelling units, but is designed to emphasize as much as possible the dignity of the individual. Color is used freely and effectively. We are happy to be able to present at least part of it to our readers in full color.

KENNETH REID, Editor; FRANK G. LOPEZ, Managing Editor; DON GRAF, Technical Editor; BERNARD RUDOFSKY, Associate Editor; OLGA GUEFT, Editorial Assistant; JEDD REISNER, STANLEY SHARP, Drafting; PHILIP H. HUBBARD, Publishing Director; JOHN G. BELCHER, Business Manager; JOHN ZELLNER, Circulation Manager. Layout and typography by Rudofsky.

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"If American business wants immediate postwar construction, American business must plan now!"

Statement by FREDERIC C. CRAWFORD
President, National Association of Manufacturers

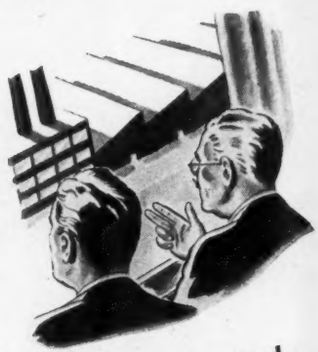
"WHILE winning the war is our number one job, it doesn't mean that postwar construction planning should be last on our list of things to do today.

"You, your company or your community need not make a full-time project of what's needed in the way of new or remodeled factories, buildings, homes or entire urban areas. There are plenty of competent men available for this . . . highly trained architects and engineers . . . who need only the expression of your thoughts *and the go-ahead* to do the heavy thinking and pencil work for you.

"Unless American business recognizes this planning responsibility immediately, the Federal Government again will be forced to institute large public works programs to sustain employment. After the armistice, private business cannot immediately absorb ten or eleven million war veterans and twenty million war workers.

"But if you start construction planning *now*, America's No. 1 industry, the Building Profession, alone will be able to put seven-and-one-half million workers into building jobs when the war ends.

"One of the big things we're fighting for today is free enterprise. Exercise a little of it toward planning today, so that tomorrow it may continue uninterrupted."



Plan Needs Now!

Building or rebuilding the needs of your factory, community or home is not a one-day job. If you want immediate postwar construction you must let your architect or engineer start visualizing and planning today. Call him now!

TRUSCON STEEL COMPANY, Youngstown, Ohio
SUBSIDIARY OF REPUBLIC STEEL CORPORATION

FOREMOST TECHNICAL SCHOOLS

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VIEWS

Opinions from readers
Remarks from the editors
Data wanted
Changes of address

Poor Seamanship

Dear Editor:

My God! do you realize the designer of the craft shown on Page 77 of the October number of NEW PENCIL POINTS has failed to install a whistle on either smoke stack? Not even a running light is to be seen. Please notify him of this oversight as soon as possible, that there may be no fatal accident during this foggy weather.

"Functionalism" is so important a matter should not be lightly disregarded.

Oh! for a Magonigle.

I'm greatly perturbed.

OSCAR A. THAYER, Architect
Boston, Massachusetts

FROZEN MUSIC

The following article was submitted to us for publication by Thomas H. Creighton, Architect, of New York, N. Y.

The dictionary says that architecture is the art of building construction. That is a flat and very unsatisfactory definition.

This is Mr. Jason, Commander; he's the architect's representative on the job. Mr. Jason says those bolsters under the mess hall roof joists aren't end grain, it's up to you should we change them Commander, and do you want to ask him about that vent connection in the L barracks, should we make it a loop vent? What do you think, Mr. Jason, from an architectural point of view, will those louvers at the unit heaters leak pitched that way, or don't you think so?

When I went to school and listened to lectures and studied design I was not taught very much about architecture. That was not too long ago, either. It took us such a very long time to shudder away from that nineteenth century definition of architecture as the decoration of construction. When I went to school we knew, and our teachers knew, that that definition was false, and yet no one taught us a better one. We knew that there was some value in studying the classics, although we felt very silly rendering our analytiques. Those were days of debunking and sacrilege, and it tickled us when le Corbusier drew red lines through the orders and wrote, *"Ceci n'est pas l'architecture, ce sont les styles."* But then, disturbingly, he went on to say, "Living and magnificent in their time, they are today only cadavers." They were once living and magnificent. Architecture today. and styles tomorrow. We still did not know what to understand by architecture.

Mr. Jason will you initial this extra order, you remember we had to put in that furring over in the recreation building, the Lieutenant says he won't O.K. it unless you stick your neck out too I mean unless you initial it also. Mr. Jason will you look at this shop drawing for the drill hall sash, we'd like you to approve it as soon as you can because it's in the mill I mean we'd like to get it in the mill as soon as you approve it, oh God, don't change *it!*

The first voice that attempted to give us a definition to replace the meaningless ones was Louis Sullivan's. Very few of us heard. "No people can create except in its own subjective image. Hence what people are within, the buildings express without." In Europe a few people were beginning to understand. In the Bauhaus they were teaching architectural students to use new products, new methods of fabrication, as the materials of expression. It began to make sense to us. How stupid we had been! This was no great new truth—through all the ages architecture had meant not concealment nor ornamentation, but *expression.*

I forgot my button today, sentry, can you give me a temporary pass? I'm the architects' representative. The architects'. No, I'm not with the builder—the architects. We designed this camp. A-r-c, oh well, yes, I'm with the builder. Thanks for the pass. I'll return it on the way out.

Negative. For a while everything was negative. Some of us went on being eclectics, and enjoying it, and others of us tried our darnedest to express in building materials the thought Sullivan expressed so perfectly in words—form follows function. Beautiful cubes. Cleanness of line unmarred by meaningless ornament. Negative. The theory was good, but nothing came. Did it prove that we Americans, with our "unhappy, irrational, heedless, pessimistic, unlovely, distracted, and decadent" qualities had nothing positive to express?

Major, do you know I think we've got something in this concrete block construction. It looks good and it's cheap. We had to use it, and by God it looks like itself *the way we used it. As architect, Captain, I think it might be smart to reduce the number of types of lighting fixtures—simplify maintenance. Lieutenant, let's increase the overhang on those flat roofs—get as much ventilation in 'em as we can to avoid condensation. As architect, Commander, I recommend that we leave that auditorium the way it is; for heaven's sake don't paint those plywood walls—they look good as plywood — and leave those trusses alone. They're the best looking thing on the job. They look like what they are and they're beautiful.*

A few good things began to appear. Simple, dignified, functional but not barren, *articulate* — we began to talk architecturally, which must mean that we had something to say—we finally had something to express. Our great dams. Some churches. Here and there a hospital. An occasional house. There is the beginning of a positive expression.

Admiral, I want you to look at your station. Really *look at it. General, look at your camp. We planned it quickly, but we took all the functional factors into consideration, you and we. This is the way the buildings had to be arranged, because any other way they wouldn't have functioned, and in war they have to function—nothing else matters. We had to sweat out that solution, you, our client, and we, your architects and engineers. We had no choice in the materials we used—we took what was allowed us, and our limited choice made us ingenious. We found new uses for old materials. We learned economy and skill in planning all over again. We wish we could plan for a more rational purpose than war, but we have no choice in the matter—that's the only purpose that matters for a while.*

The war period will drive many of us out of architecture, never to come back, as the depression did. It it lasts very long, architecture will cease almost entirely for its duration. But it may teach us to value materials and to treasure design—they are such scarce commodities today. We have been extravagant. We have been surfeited. We had all the styles of the past accurately measured and drawn and published for us to copy. We had more materials at our command than any builders in previous ages dreamed of. We still have a tremendous story to tell in our designs—all the vitality, exuberance, imagination, skill, optimism of our country. After the war is won we will have this story to tell. And I think we will be ready to tell it.

The Private Architect versus the Civil Service

The following article, submitted to us by Charles C. Platt, Chairman of the Committee on Legislation of New York Chapter of American Institute of Architects, discusses an issue which the Post-War School Building program has raised. *(See page 13).*

The endeavor, here in the New York sector, of Civil Service groups to eliminate the private architect and engineer from the planning of public works goes on apace. We meet it each year in Albany in the shape of legislative bills in the State Legislature, and each year these bills are defeated.

Here in New York City, this hostile activity has recently quickened its pace and increased its volume due largely to the huge appropriation the City has made for architectural and engineering services in order to have plans for post-war construction prepared and ready to meet the employment emergency. This total appropriation for professional services aggregates more than twenty-two million dollars, and the post-war

(Continued on page 10)

EXPLODING DEPTH CHARGES to destroy a lurking enemy submarine is spectacular and heroic. But if you have a relative or friend on active duty in the armed forces . . . no matter how proud you may be of him . . . don't talk about it! Your conversation may reveal information that will result in his becoming a prisoner of war, a casualty . . . or a corpse!

You never can tell how well your most trusted confidants can keep a secret. You never can tell what harm such knowledge as the location, movement and duty of a soldier, sailor or marine can cause to him, his comrades, your country . . . and you . . . if it leaks out to enemy agents.

In fact, by revealing such secrets, you make yourself an enemy agent . . . inadvertently, of course, but actually! Whatever you may happen to know about the goings, comings and doings of anyone in the armed forces . . . don't talk about it.

THE SCOPE OF RAYMOND'S ACTIVITIES *includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also caissons, construction involving shore protection, ship building facilities, harbor and river improvements and borings for soil investigation.*

RAYMOND CONCRETE PILE COMPANY

Branch Offices in Principal Cities

140 CEDAR STREET, NEW YORK, N. Y.

VIEWS

(Continued from page 8)

construction program exceeds seven hundred million dollars. This has created a contest between the professions and the Civil Service as to what share each should receive of this work; and the Civil Service interests have attacked the award of any of this public work to the private practitioner in three different ways—two by litigation and one by attempted legislation.

I

The first attack came early in the Spring in the shape of a suit instituted in the name of one Hardecker, a Civil Service employee, and others, including the Federation of Associations of Employees of the Board of Education vs the Board of Education. This involved school buildings only; and the professions intervened in the capacity of "amicus curiae," or as a "friend of the court" as it is also called, in order to add their weight to the defense the City was setting up. The suit was instituted under the State Education Law, a State Law, which reads to the effect that the bureaus of the Board of Education shall design all school buildings in New York City excepting, as the law reads, in "special cases," in which upon the approval of the Board of Estimate the work "may be otherwise performed." The case hung on the interpretation of "special cases" and Justice Klienfeld of the Supreme Court, in his opinion upon the question, stated:

"It would seem that a 'Post-War Works Program' is a special case in that it is something out of the ordinary, uncommon and extraordinary. It has for its aim an easy transition from a war to a peace economy immediately following the cessation of hostilities, and particularly the prompt employment of soldiers as they return from the far-flung and widespread battlefronts. Under such circumstances the Court many not give to the words 'special case' a narrow construction which in effect might tend to defeat such laudable purposes."

This decision was appealed to the higher courts and the lower court was sustained unanimously and without further opinion.

Since the lower court in its decision accentuated the war emergency as a primary basis of its findings, no broad definition was laid down as to just what "special cases" would mean in the light of normal times. In that respect further litigation may develop should the Board of Education favor the profession with future assignments after the present emergency is over.

II

The second suit was instituted by the Civil Service Technical Guild vs the Mayor and other City officials and was based on the broad grounds of the alleged rights of Civil Service Technical Guild vs the Mayor and the State and under the Civil Practice Act to preferential employment on public work as long as the Civil Service lists have not been exhausted. Then and only then, it was contended, could the City employ the private practitioner.

This attack went further than the first case in that it embraced all Departments of the City, and sought furthermore to invalidate contracts already awarded to the private offices, and to forbid any payments under those contracts. This case was won by the City and the professions in the court of first resort and Justice Pecora, in his opinion, quoted from the State Constitution as follows—"Appointments * * * in the civil service of the State, and * * * cities * * * shall be made according to merit and fitness to be ascertained, so far as practicable, by examinations, which, so far as practical, shall be competitive, * * *," and he then proceeded to state—"The reasons for the action taken by the Board of Estimate, advanced in the answering affidavits, are pertinent only to the question of whether there has been any arbitrary or capricious exercise of a power. The contracts attacked were evidently entered into to meet technical problems for which private firms were especially equipped to master, to accelerate

(Continued on page 90)

Memo to Architects Now Planning the Home of Tomorrow

Millions of new "converts" to shower bathing are being made right now—in public and private war housing, military camps and war factories!

Their preference for the greater cleanliness, and comfort of bathing in clear, running water, will be carried into peace-time. Men and women alike will demand the full enjoyment of shower bathing which is provided by the Weisway Cabinet Shower.

Weisway pioneered the Cabinet Shower idea. After the war you can again look to Weis for leadership—with a complete line to fit the requirements of homes in all sizes and price classes. The most practical modern materials, advanced engineering and precision manufacture will mark Weisway post-war models.

In The Meantime Weisway Model V Deluxe provides thoroughly satisfactory bath facilities for war housing, military camps, factories, public or privately financed construction or remodeling. Conforms to WPB metal limitation orders; available immediately. Write for detailed information and specifications.

WEISWAY Cabinet Showers

HENRY WEIS MFG. CO., INC. (Est. 1876)
1221 Oak Street, Elkhart, Indiana

NEWS

Design and construction
Developments afield
Building regulations
Related professions
Products progress

Among the gratifying changes in the new simplified War Production Board order L-41 (effective Nov. 1) is the exclusion of architects' and engineers' fees from the computation of costs which determine whether or not the project can be started without authorization. Another change excludes the value of used equipment from such costs. Still another excludes the cost of repair work from the cost of a project involving both new construction and repair.

Authorization is not required for farm construction involving $1,000 or less, against the old figure of $1,200. The $200 unauthorized minimum remains for a residence, $1,000 for a multi-family dwelling, and $5,000 for industrial buildings, with certain exceptions. For other types of construction, authorization previously had to be obtained if the cost was $1,000 or more. This still holds for some types of construction, but the amount has been reduced to $200 for any other kind. The $1,000 figure still holds for public buildings, bridges, dock and bus and street rail facilities, irrigation and drainage projects, warehouses, Army or Navy exchanges, and utility facilities including sewage systems. The amount for commercial buildings ranges from $200 to $1,000 depending on the number of units.

Projects for which permission is not required, regardless of cost, include maintenance and repair exclusive of additions and structural alterations; rebuilding where the Red Cross has priority assistance; construction involving the salvage of farm products; buildings or facilities belonging to U. S. military agencies; building insulation; earth moving operations which do not use cement, lumber, or other building materials except clay tile and non-reinforced concrete pipe; projects to facilitate the operation of farms, railroads, utilities, mines, petroleum industry, logging, chemical and steel plants; broadcasting. Permission is not required for rebuilding of houses and farm buildings damaged by disaster if the cost is less than $5,000, nor for plumbing and heating if less than $200.

Preference rating certificates granting permission to start work without applying for special authorization may be given to public roads, projects important to the war effort or to essential civilian needs, privately owned programmed war housing, utility facilities, and some works of the Corps of Engineers.

Nothing in the new order affects the necessity of obtaining priority ratings for materials.

Prefab manufacturers have at last announced formation of the Prefabricated Home Manufacturer's Institute, with Harry H. Steidle, Washington, D. C., as managing director.

The institute aims to establish standards for the products of its members, and to promote their sale. Steidle predicts that the industry will attain the efficiency characteristic of the automotive and machine industries, and that it will make well-constructed homes available to income groups which could not afford good housing in the past. He says that standardization of *parts* does not imply standardization of *design* of the finished product—and the finished home need not lack individuality. Varied combinations of colors, materials and arrangements can satisfy all tastes, sites and pocketbooks.

Members of P.H.M.I. attach great importance to the action taken at the recent annual convention of Pacific Coast Building Officials when structural and erection standards for factory-formed structures were incorporated into the uniform building code under which 347 cities throughout the nation operate. This is the first official action taken with regard to prefabrication standards.

The institute includes the more important of the more than 100 firms in the nation who are today actively engaged in the production of prefabricated buildings. Among the officers are: Walter Ahren, Southern Mill and Manufacturing Co., president; James L. Pease, Pease Wood Work Co., vice president; Henry Palmer, Allied Housing Associates, secretary and treasurer. Executive committee members are: Frank M. Roberts, Houston Ready-Cut House Co.; T. C. King, King Co.

A notable career of more than thirty years' duration was brought to a close on November 24th, with the death of Joseph H. Freedlander, architect of the Museum of the City of New York and some other of the city's most important buildings.

Mr. Freedlander designed the Museum of the City of New York, built in 1930 at a cost of $1,500,000. Among his other works are the Bronx County Courthouse; the Bronx County Jail; the Importers and Traders National Bank; the New Harlem Hospital; the National Home for Disabled Volunteer Soldiers, Johnson City, Tenn.; the St. Louis Club, St. Louis; the Fifth Avenue traffic towers, the White Plains Municipal Building and the buildings of the Saratoga Spa.

Mr. Freedlander was born in New York and was graduated from the Massachusetts Institute of Technology and the Ecole des Beaux Arts in Paris.

More steel is now available to construction contractors, who may apply for a portion of the steel released by contract terminations and cancellations. The steel so acquired is over and above the amount to which they are entitled from "new" stock—so designated to distinguish it from "surplus." No "controlled materials" orders are needed for such sales, and applications may be made to the nearest WPB regional office in person, or by mail, telephone or telegraph. Contractors are also permitted to sell surplus steel.

"Surplus" steel includes both excess steel (supply in excess of 60 days' requirements) and idle steel (not required for immediate or anticipated needs). Additional sources of surplus are order cut-backs, changes in design, over-purchases and over-shipments.

Requests being received by the WPB from claimant agencies to remove excess and idle steel indicate that the amount available is rapidly increasing above the 389,000 tons reported (on a voluntary basis) in October. Most plentiful in the reported surplus is sheet and strip steel, followed in order by carbon steel wire, structural shapes, and carbon steel bars.

Formerly contractors could obtain such stock only through the Steel Recovery Branch of the Steel Division in Pittsburgh, which has recently been replaced by the Surplus Inventory Branch. The new branch will help regional offices to redistribute surplus tonnage, and may request owners of surplus steel to volunteer to sell to contractors who need it.

Buyers of surplus steel may have to pay prices boosted by cost of transportation, although the basic price is no greater than that of new steel. The surplus is widely scattered throughout the country, and may be much farther from the buyer than the normal source of steel. In addition, the seller is allowed to regain the cost of shipment to him.

New York City plans to build 60 schools at the close of the war. Seventeen projects costing in total $21,216,000, are ready, with sites approved and plans completed. The whole program involves a contemplated expense of $96,318,000. New York's mayor termed it the most complete school building program undertaken by any city in the history of the world.

Twenty-nine of the plans are being designed by private architects, who will receive a total of $1,322,130 in fees. The remaining thirty-one are being prepared by the Board of Education's Bureau of Construction. Ordinarily, new schools are planned by the Board's architects, but private firms were engaged in order that plans may be available immediately upon the cessation of hos-

tilities. It is expected that about a dozen additional new schools will be included in next year's program. Whether these will be designed by private firms has not yet been decided.

Some time ago civil service architects attempted by means of court proceedings to prevent private architects from doing this type of work. Charles C. Platt, Chairman, Committee on Legislation, N. Y. Chapter, A.I.A., discusses this problem elsewhere in this issue.

A plan for the redevelopment of New York City by private entrepreneurs chosen by a City Planning Commission has been suggested by Alfred Rheinstein, former Chairman of the New York City Housing Authority. The plan is predicated upon the city's acquisition of the lands to be rebuilt. Once acquired, the land would be advertised by the commission, which would also furnish essential data on existing conditions.

Groups of engineers, bankers, transportation experts, architects, sociologists, lawyers, and authorities on municipal finance would vie for the privilege of rebuilding the area by submitting plans to the commission. Candidates would be limited to those qualified for the task, as determined by the judges. These judges (both of candidates and of submitted plans) would be appointed by the Mayor from nominations by interested professional societies.

The final plans would be complete in all details, cultural and economic as well as physical, and the criteria would include the plan's benefit to the city as a whole as well as formal elements of the design. Contestants would be reimbursed for their out-of-pocket expenses. Judges would submit the winning plan to the Planning Commission. Rejection by the Board of Estimate is considered unlikely.

After the area to be redeveloped has been acquired by the city, it would be offered up for sale in sections. The winning group would retain supervisory powers over the execution of the redevelopment. There may also be provision for public housing projects.

Mr. Rheinstein was guided by the philosophy that government's domain should not extend beyond the public interest and public facilities; that short of interfering with this domain and with the rights of others, private enterprise should forge ahead. Government might rebuild on a grander scale, but private enterprise would do a neat, economical, and possibly even a profitable job.

The slogan, "Start planning with your architect and engineer right now," is being featured by the Truscon Steel Company in a series of vigorous advertisements appearing in late publications. Our hats are off to them and to any other manufacturers who take up the campaign to get postwar plans for private construction under way as soon as possible.

The city dweller has a life span of only 61.5 years as against a span of 64.1 years for the rural resident, according to 1939 mortality statistics presented in the article "Rural Life Span Longer Than Urban," by T. N. E. Greville, Division of Vital Statistics, Bureau of the Census, published in *Domestic Commerce*.

The following bills have been introduced in Congress to provide financial aid for returning soldiers and sailors who wish to purchase homes or farms:

1. H.R. 3014, introduced by Congressman Murray of Wisconsin to authorize grants not to exceed $1,000 per veteran for the purchase of a farm or home. Loans in amounts to cover the additional cost of the house or farm are also authorized. Such loans are to be secured by a first mortgage bearing interest at 3% a year, to be repaid in instalments over a 40 year period.

2. H.R. 3023 introduced by Congressman Wickersham of Oklahoma to create a veterans' farm mortgage insurance fund of $500,000,000 to be used by the Secretary of Agriculture as a revolving fund for the insurance of first mortgages on farms purchased by veterans of any war.

To be eligible for such insurance, the amount of a mortgage shall not exceed 90 per cent of the reasonable value of the farm and improvements, shall bear interest at a rate not in excess of three per cent a year, and shall be amortized in not less than 30 years.

3. H.R. 3200 introduced by Congressman Patman of Texas to amend the Bankhead-Jones Farm Tenant Act by authorizing an appropriation of $100,000,000 for each fiscal year beginning prior to the end of the war and $100,000,000 for each of the 5 years following the war, to enable qualified veterans to purchase farms under the terms of the Act.

4. S. 1341 introduced by Senator McCarran of Nevada to authorize any "lending agency" including Federal savings and loan associations which are members of a Federal home loan bank, to lend to any veteran up to $1,000 to enable him to retire indebtedness on his home. Such loans are to be secured by instalment notes maturing in 3 years or less and bearing interest at 6 per cent. The. R.F.C. is required to purchase any such note remaining unpaid 30 days after maturity.

Proposed amendments to the National Housing Act include a provision permitting veterans to purchase houses insured under Title VI on liberal terms, with the Government absorbing part of the cost, a proposal to grant a larger cash bonus to a veteran if it is applied to the down-payment on an FHA insured home, and 100 per cent FHA insured home loans to veterans.

The $1,500,000 war-housing project at Eggert Road and Kensington Avenue, Buffalo, is nearing completion from plans by William I. Hohauser, New York architect. Many of the 284 units already have been completed and occupied. The Buffalo Savings Bank made the mortgage loan, which is insured by the FHA. Godfrey M. Weinstein of New York is the builder.

The American Standards Association has added another building standard, "Structural Steel (Riveted, Bolted or Welded Construction) (A57.1-1943)," to its group of building code requirements. Requirements apply to the design, fabrication, and erection of structural steel for buildings and other structures covered by building code requirements; standard does not apply to steel joists, members formed of flat rolled steel, light-gage steel construction, skylights, marquises (except structural frame), fire escapes, or other miscellaneous light steel construction—subjects which are still being studied by committee A57.

(Structural Steel sells for 40c, may be obtained from the American Standards Association, 29 West 39 Street, New York 18, N. Y.)

Another new American Standard has just been approved which brings together in one document the standards covering pipe plugs, pipe bushings, pipe caps, and locknuts used in piping systems and other piping applications. This is known as "American Standard for Ferrous Plugs, Bushings, Locknuts, and Caps with Pipe Threads (B16.14-1943).

All fittings with a similar function are brought together in the new standard. The work was prepared under the guidance of the American Society of Mechanical Engineers, the Heating, Piping, and Air Conditioning Contractors' National Association and the Manufacturers' Standardization Association of the Valve and Fittings Industry. Copies may be obtained from the American Standards Association (address above) for 40c each.

The British Standards Institution is now circulating the first draft standard prepared under the British building codes and practices program, before considering it for final approval. The new standard will be Chapter V, Strength—Stability and Loadings, of the Classification Code, and deals with minimum loads which should be taken into account in the design of buildings, for use with working stresses based on the properties of the various materials. No account is taken of constructional loads. One section makes recommendations for dead and superimposed loads and forces induced by wind (for conditions normal in Great Britain), and a sec-

ond section is devoted to the effect of enemy action in time of war, and classifies buildings in terms of their resistance to it.

The British building code program includes plans for a series of building codes as well as a Classification Code. The series will deal with methods of using materials in order to achieve the functional requirements of the building.

The Classification Code will have chapters on natural light and air; space and circulation; precautions against noise, fire, corrosion, dirt and vermin; strength, weather protection, etc.

The tentative draft was developed by a technical group under the Coordinating Committee of the Codes of Practice Committee for Civil Engineering, Public Works, Building and Constructional Work. This Committee consists of representatives of the principal technical societies, the British Standards Institution, the Building Industries National Council, members nominated by certain Government Departments, and a chairman appointed by the Minister of Works and Planning.

Among the sources studied before the draft was prepared are the recently approved National Building Code of Canada, the Building Code of the State of California, the Pacific Coast Building Code and the German Building Code of 1941. "In the field of research and investigation," the committee reports, "the most comprehensive work on floor loads appears still to be the survey by the U. S. Bureau of Standards by the Committee on Building regulations."

Copies of the proposed standard—"British Standard Code of Practice on Strength—Stability and Loadings"—have been received by the American Standards Association and may be borrowed from the ASA library.

Private interests are planning to scuttle the public housing program, according to Charles Abrams, board member of the National Housing Conference, Inc., who spoke before 100 representatives of various housing organizations at the annual meeting of the National Association of Housing Officials, North Atlantic Regional Council, Friday, December 3rd at the Hotel Park Central in New York City.

Mr. Abrams asserted that the Lanham act, passed by Congress to provide funds for public housing "is the greatest monument to public apathy, and if real estate interests have their way, Lanham projects may be the first step toward liquidating public housing."

None of the houses built under the act can be used for low-rent housing in the postwar period, and the measure prevents conveyance to any "public or private agency organized for slum clearance or to provide subsidized housing for persons of low income."

"The outcome after the war will be the sale of these houses to private speculators. The results of this will be either forced sales to tenants, a mass exodus or a grand party at the expense of the Government. The private speculator will want to sell rather than to rent because there is a greater profit in that."

"Unfortunately, local authorities cannot buy even if they bid a higher price. Cooperatives or philanthropic organizations cannot bid either."

Continued Federal ownership may be a solution to the problem, but Mr. Abrams said "this would only incur the wrath of Congress under the pretext that it is not expeditious." Other possible solutions Mr. Abrams mentioned were: temporary postwar lease to public agencies until the "expeditious" time comes; mutual home ownership; sale to a non-profit agency; and demotion, which he described as wasteful.

Evidence of the validity of Mr. Abrams' contention: Public housing was unanimously scored at recent conventions of the National Associations of Real Estate Boards and Home Builders, which declared: "We believe that the public housing experiment has failed. In most instances public construction costs have been exorbitant and the shelter has not given relief to those in greatest need. The movement as presently constituted is a social and political menace . . . Permanent housing now owned by local or federal governments should be disposed of to private enterprise."

Architects, draftsmen and students who have experienced difficulty in obtaining slide rules may be interested to learn that three new slide rules—one for the professional man, one for the apprentice and also a five-inch size, have been made available by the Frederick Post Company of Chicago. All three contain the scales A, B, C, D, CI, K, S, L, and T. The apprentice rule has a painted face, the others are celluloid faced. (Box 803, Chicago 90).

A tremendous demand for post-war public construction of many types is undoubtedly being built up as a result of war-induced scarcities and local shortages of labor and materials for new construction and repair, according to C. H. Buesching, president of the Lincoln National Bank and Trust Co., Fort Wayne, Ind. In his address at the Associated General Contractors' Conference held in Chicago during the second week in November, Mr. Buesching expressed his opinion that a recession of any consequence appears unlikely after the war, because of the present high level of federal budgets, causing government support towards a relatively high national income in the post-war era.

Plans for an educational advertising program bearing the slogan, "This Is Blue Print Time," were outlined during the AGC conference by H. C. Foreman, managing director. Soon to be conducted by the association, the program will advocate the general contract system for public construction, and is designed to develop more cordial relations between architect, engineer and contractor.

Free classes for home planners are being started in Portland, Oregon, by lumbering and savings and loan associations. These are intended to prepare future home owners tob uild or buy homes; there is no charge except that prospective owners who sign up for the hour-and-half classes, held monthly, must sign up for regular monthly savings toward a down payment on a house. Sponsors are: *the West Coast Lumbermen's Association, the Western Retail Lumbermen's Association, and the Equitable Savings and Loan Association,* who plan to use Portland as a pilot plant. Soon after the practicability of this scheme is proved they intend to make it available to every city in the country.

Subjects to be covered include Site Selection, Financing, Architecture, Materials, Construction, Heating, Air Conditioning, Plumbing, Wall Finishes, Landscaping, Interior Decorating and Furnishing.

The postwar demand for civil engineers will far outrun the supply, according to faculty members of Cooper Union Engineering School. Vast reconstruction abroad, as well as the domestic building program scheduled in the United States, will call for many more young engineers than are now enrolled in civil engineering courses. Service men who have taken army courses in civil engineering will not be able to fill the gap because the army courses are limited to military problems.

Low enrollment was a result of the depression, which sent students into other fields such as electrical and chemical engineering. Today civil engineering enrollments remain the lowest in the field. Schools have been making a drive to enroll women but there has been almost no response so far.

Calling for a Congressional investigation into public housing costs, the realty men proposed that any further subsidies be paid to needy families to enable them to pay economic rents.

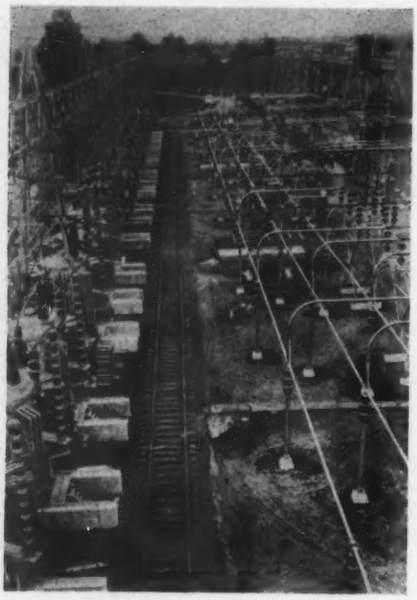
Expenditures for new construction in the United States (continental) were 60% less in September, 1943 than in the same month of 1942 and 10% less than in August, 1943.

Judging from building permit data and reported contract awards, which have declined in comparison with earlier months, further declines are in prospect.

There has been a slight boom in residential activity during the spring and midsummer, however, because of the need to provide shelter for immigrant war workers on the west coast and in the Great Lakes area.

NEWS

Products Progress



Substitutes No Longer "Ersatz"?

According to the A. M. Byers Co., manufacturers of wrought iron pipe, engineers of the Bonneville Power Administration in Washington have uncovered in wrought iron a capable substitute for war-scarce copper and aluminum electric buses, reportedly the first recorded instance in which this metal has been used for current-carrying mains. According to J. A. Gerber, assistant engineer at Bonneville, "wrought iron need not be classified as an 'ersatz' material; there are many points in favor of using it for permanent buses."

Discovery of the ability of wrought iron pipe to serve for these buses is expected to eliminate further need of borrowing from the government's buried horde of silver. Mr. Gerber stressed wrought iron's following qualifications:

1. At 115-kv. and 230 kv., buses are found to be well within the carrying capacity of wrought iron pipe, the largest size required being 4-in. I.P.S. standard weight. Current-carrying capacity may be further increased by slotting the pipe along its length to break the ferrous loop, and by coating the pipe with a dull black paint to increase the heat emissivity.

2. Wrought iron has a high modulus of elasticity, permitting long spans, particularly with ice and wind loading, thus saving on insulators, fittings and supports.

3. It has good corrosion-resisting properties. Paint gives it additional protection and is easy to apply.

4. Welding is an easy, economical way of joining the pipe into whatever bus arrangement is desired. Clamp type fittings are eliminated.

5. It expands less than copper or aluminum, necessitating fewer expansion joints.

6. It costs less than aluminum or copper pipe of same size.

7. Welded buses reduce corona formation.

The wrought iron buses at Bonneville were finished by first removing the protective asphalt varnish from the pipe and by cleaning it with an abrasive, then by applying a coat of synthetic red lead and two coats of aluminum paint.

• • •

Another manufacturer, the Owens-Corning Fiberglas Corp., has reported "substitute" use of glass fiber for packing distillation columns used in producing industrial alcohol—another case in which the substitute may eventually displace the originai material. Owens-Corning produces seven types of glass fibers, for such uses as Fiberglas-plastic combinations, for mixing with other fibers (as in felts, paper), and even as reinforcing for certain cements and plaster-like materials. Because the manufacturer cannot hope to anticipate all the product's potential uses, and because its commitments to the Armed Forces cannot be interfered with, the company is willing to supply limited amounts of each type of fiber for experimental purposes.

• • •

Devoe and Raynolds Co., Inc., also report that their present product—for instance, exterior house paint with higher pigment volume and reduced oil content—is as good or better than their former paint in hiding, working, and brushing properties; has a low chalking rate; and ultimately fails by controlled chalking, leaving a good surface for repainting. Many Devoe formulas are unchanged.

• • •

Yet another glass product (Vitrolite, Libby-Owens-Ford Glass Co.) has found a new use. When William H. Ham, treasurer and general manager of the Bridgeport Housing Company, found it necessary to replace tray and sink combinations in 216 apartments of an 800-apartment housing development, he learned that enamel sinks, which contain 150 pounds of cast-iron, were a wartime casualty. As a result, Ham, in cooperation with Libbey-Owens-Ford Glass Company, developed a new type of sink of heat-tempered Vitrolite.

The new sink, which is said to employ only one and three-quarters pounds of critical metal exclusive of piping fixtures, can withstand heavy blows and shocks because strength is imparted to the glass by the heat-tempering process, similar to the treatment given to metal to make fine steel. Ease of cleaning is reported to be another feature of special interest to the postwar home-builder; a damp cloth rubbed lightly over the surface eliminates stains and grease from the non-porous and non-absorbent surface. The new glass fixture is being produced in black and a wide range of pastel colors.

• • •

A different sort of substitution occurred when Liberator bombers were employed by the Army to carry Marlite panels (Marsh Wall Products, Inc.) to an Army hospital in a hurry. It was a rush construction job so the bomb bays of six Liberators carried to it materials of construction, not destruction, for a change.

Guinea Pigs Wanted

We have received the following announcement from the Fredrick Post Company:

WANTED

100 Users of Transparent Prints

(Ammonia Process)

To reduce the time element between the pilot stage and large scale production of a badly needed product The Fredrick Post Company wants 100 users of Transparent Ammonia developed prints to confirm or disprove the laboratory and limited field tests of what appears to be a full step forward in this field.

The new Transparent ammonia process, VAPO-vel, has just passed months of testing for fading, keeping quality, stability of image and background, printing and developing speed, sharpness of image and the ability to pick up both strong and delicate detail.

Trial quantities will be furnished without charge with the understanding that a detailed report will be made on the results of the tests.

If the comprehensive reports are favorable the original production will be available to the one hundred companies participating in the tests.

For those who wish to make these tests just write the Frederick Post Company, Box 803, Chicago, 90.

Electric Light without Wires

To help plan the better homes, hotels and public buildings of tomorrow a group of prominent architects and designers were recently shown lamps lighted by wireless electronic power, a 10,000-watt mercury vapor lamp one-fifth the brightness at the surface of the sun, and watched an electric lamp cook bacon and eggs. The demonstration of laboratory models of new lamps, and of wartime and possible postwar uses of lamps and light, was conducted by Samuel G. Hibben, director of applied lighting for the Westinghouse Lamp Division.

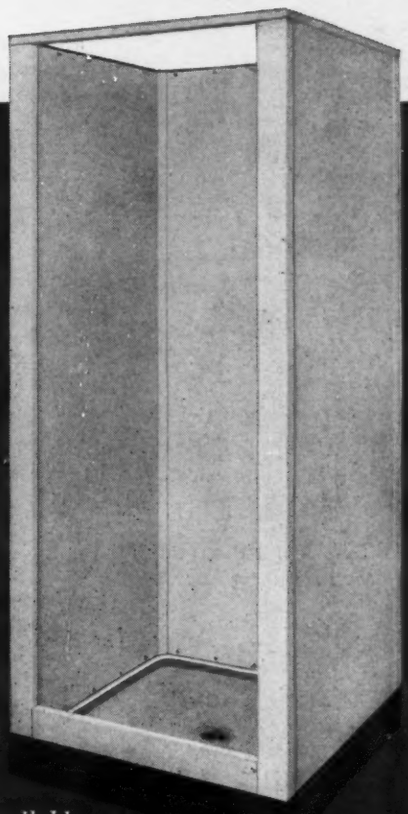
Walking about the room carrying brilliant, vari-colored fluorescent tubes fully lighted although they were unconnected to sockets or electrical wiring, Mr. Hibben said: "Although practical use of electric power transmitted without wires—except for signal purposes—is probably many years away, the spectacular strides in development of electron generating tubes we have made during World War II seem to be leading in that direction. These lamps are not connected with any power source. They are electronically harnessed to a beam of high frequency radio energy generated here in this room by a diathermy set such as your doctor might use.

(Continued on page 85)

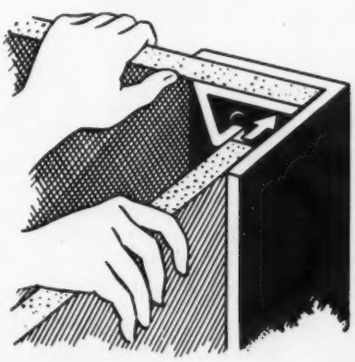
FIAT'S *Volunteer*

SHOWER CABINET

The Volunteer structural features, originated by Fiat and accepted by government engineers, are the adopted standards of war shower construction.



Immediately available on low priorities.



WALL PANELS

Tempered, hard pressed treated fibre-board, conforming to Federal Specifications LLL-F-311, Class B. Coated inside and out with waterproof baked-on enamel.

STEEL FRAME

The steel frame of the Volunteer is designed to use a minimum of critical war material and still retain the structural strength and rigidity essential to sound shower cabinet construction.

RECEPTOR

The standard Fiat pre-cast, slipproof receptor is used to insure a watertight base and a firm foundation for the walls and frame.

TENSION LOCKING JOINT

A patented Fiat feature. This steel corner joint is formed to obtain maximum strength. Fastened permanently to the back wall at the factory, the tension rib allows the side wall panel to be snapped into position and secured watertight without further screw fastening on the job.

REAL FACTORY PREFABRICATION

All parts of the metal frame, except the one piece top, are permanently attached to the wall panels at the factory. This prefabrication makes the Volunteer the fastest erecting of all war showers. (Only 18 minutes for complete assembly by one workman.)

Write for Volunteer Bulletin V-100

FIAT METAL MANUFACTURING CO.
1205 Roscoe Street, Chicago 13, Illinois
21-45 Borden Ave., Long Island City 1, N. Y.
32 So. San Gabriel Blvd., Pasadena 8, California

REVIEWS

Books
Periodicals
Bibliographies
Manufacturer's literature

Books

Plastics

Revised Edition, by J. H. Dubois, American Technical Society, Publishers, Chicago, Ill.

A simplified presentation of the manufacture and use of the important plastics materials and products with tables of their properties and the basic design information required by engineers and designers.

This is a refreshing, clearly written volume on plastics. It is not meant for the advanced specialist in the field, but for those who intend to use plastics and want to gain a thorough background knowledge in this subject. It covers the origin, the method of manufacturing of the plastic materials, and gives an excellent review of the workability, available colors, and the use of all the known plastics. It is a fine book for an architect or industrial designer who wishes to use plastics to develop new ideas or replace old materials.

The book is well illustrated and up to date, as well as equipped with a fine index and general property tables.

The volume includes a study of the fundamentals of rubber compounding and moulding; also, excellent data on synthetic rubbers and vulcanized fibre. The sections on laminating and laminated plastics are excellently written.

The book is well recommended and deserves praise for its lucid presentation of a difficult subject.

JOSEPH DOUGLAS WEISS, Architect

A New Method for Measuring the Quality of Urban Housing

A Technic of the Committee on the Hygiene of Housing.
Reprint from American Journal of Public Health, Vol. 33, No. 6, June, 1943; Published by the American Public Health Association, 1790 Broadway, New York, N. Y.

"Three years ago the Committee undertook to develop a method of measuring the quality of housing in urban slums. The direct stimulus for the Committee's work in this field of appraisal was a number of requests from public health officials that they translate the substance of their "Basic Principles of Healthful Housing" into a yardstick of housing deficiencies, as a basis for enforcement work in problem areas."

Thus the article starts. Two other quotations indicate, more satisfactorily than could a review, the scope and method used. "American cities devote thousands of man-days every year to housing inspection service in their slums, but it is a rare community in which this effort provides usable answers to the questions on which a long-term housing program must be built. Such questions, for example, as: Just what is the size and nature of the extreme slum areas? How much worse is district A than district B, and in what respects? How many dwellings should be designated unfit for habitation, and either demolished or rehabilitated? Aside from the condition of dwellings, are the problem areas, as neighborhoods, fit to live in?"

As to method:

"1. It reports and evaluates housing deficiencies which may adversely affect health, safety, or essential livability.

"2. The neighborhood environment, largely ignored in previous survey methods, is recognized as an essential element in housing adequacy.

"3. The quality of housing is measured by a tested system of numerical scores.

"4. Clear, well designed forms are provided for data collection. Systematic procedures for analysis and graphic presentation of the significant findings are an integral part of the technic.

"5. The method is suitable for execution by the regular personnel of city departments, after brief instruction."

The committee on the Hygiene of Housing believes that only by appraisals of this type can the true status of neighborhoods be ascertained, and the fitness for housing or their need for reconstruction be determined. As a scientific method of evaluating neighborhoods, and as one which enables results to be presented in simple terms understandable even to the uninitiated, the committee's technic should prove most valuable, particularly if it can be sufficiently popularized before the post-war building boom attacks us.

Portland Improvement

A report by Robert Moses of recommendations for a post-war program, made at the request of the City of Portland, Ore., County of Multnomah, School District No. 1, and the Commission of Public Docks. Printed in New York City, November 10, 1943.

Mr. Robert Moses, our multiple Commissioner of Parks, Authorities and other things, has been to Portland, Oregon, with a staff of distinguished experts, to prepare a plan for post-war employment.

Portland and environs have grown during the war from 355,099 to about 469,000. There are about 137,000 people in war industries of whom about 94,000 are in the Kaiser shipyards. About 45,000 of these war workers came from Portland and the balance mostly from west of the Mississippi, New York and Pennsylvania supplying only 3,799.

It is estimated that 67,000 will have to find new jobs or go elsewhere. It is assumed that half of these will return to their original homes. Of those left, up to 20,000 will find work under the proposed public works program and those remaining either will be absorbed by private industry or go elsewhere.

The report suggests a public works program of $60,000,000 for construction and $15,000,000 for land and includes the construction of express arteries at a cost of $20,000,000; a like amount for sanitation, public buildings, port, schools, sewers and other major developments. For streets, park, tree planting and miscellaneous work $12,000,000 has been allotted.

Another part of the work proposed consists of state work outside the area, including the construction of highways, and the cleaning up of burned-over lands for which $8,000,000 is allotted.

Funds to pay for designs for the project are available for more than half the work. It is recommended that $800,000 be immediately appropriated for the preparation of plans for the rest of the program.

The report is well illustrated with photographs, charts, maps, plans and diagrams, New York improvements being given as examples to be emulated.

The broader aspects of Portland improvements are suggested in the paragraphs on Housing, Hospitals, Power and Zoning.

It is an efficient and sensible report without showy features or wild conclusions.

CHARLES DOWNING LAY, A.I.A.

Lighting Handbook

"Lighting Handbook." 175 pages, leatherette bound, 4½" x 7¼", illustrated. Limited Edition, $1.00 per copy. Available at district offices of the publisher, Westinghouse Electric & Manufacturing Co.

Because of the demand for information on wartime lighting, Westinghouse Lamp Division, Bloomfield, N. J., has issued a *Lighting Handbook*, originally scheduled for release after the war. Designed as a practical guide and working reference book for lighting engineers, designers, architects and builders, the book on lighting was prepared by the Company's Illuminating Engineering Department.

A feature of the handbook is a series of charts which coordinate room index, fixture efficiency and coefficient of utilization curves and provide a new and graphic method of determining the desired illumination for various applications. Charts cover industrial and commercial fluorescent and incandescent lighting and provide a means of calculating quickly the number

(Continued on page 22)

MAKE THIS TEST — *Prove* BRIXMENT is BEST!

1

Take some Brixment mortar and some 50-50 lime and cement mortar. Try shoving a full head-joint with each mortar. You'll find that with the Brixment mortar (1), it is much easier to shove the brick accurately into place, with a full head-joint, than it is to do the same thing with the other mortar (2).

2

BRIXMENT *Makes a More PLASTIC Mortar!*

One of the most important characteristics any mortar can possess is *plasticity*. Within certain limits, plasticity is the greatest single factor not only in the *economy* of the brickwork, but also in its strength, its neatness and its resistance to the passage of water.

One of the most outstanding characteristics of Brixment mortar is its unusual plasticity. For nearly twenty-five years, bricklayers all over the United States have agreed that the working qualities of Brixment are comparable to those of straight lime putty. This exceptional plasticity makes it easy for the bricklayer to secure neat, economical brickwork, with the brick properly bedded, and the joints well filled. And because of this unusual plasticity, a bag of Brixment will carry three full cubic feet of sand and still make an ideally workable mortar.

BRIXMENT

For Mortar and Stucco

Louisville Cement Company, Incorporated, Louisville, Kentucky. Cement Manufacturers for Over a Century.

REVIEWS

(Continued from page 20)
and size of lamps needed with practically every type of lighting fixture.

The book is divided into two parts, chapter headings in the first section including: Lighting Terms and Measurements, Recommended Levels of Illumination, Interior Lighting Design Calculations, Interior Wiring for Lighting. In the second half of the book, devoted to specific lighting applications, there are chapters covering store, office, school, public buildings, industrial, architectural, aviation and street and highway lighting.
The book is on sale in district offices and will be offered by coupon in advertisements in the building, architectural and lighting publications. The *Lighting Handbook* is case-bound with a leatherette cover.

I Shall Arise

Reproductions of pencil drawings by Samuel Chamberlin, portfolio, 8¼" x 11⅛". Pencil Sales Dept., Joseph Dixon Crucible Co., Jersey City, N. J. Free.

For some time now, Samuel Chamberlin's drawings have been used in Dixon pencil advertisements. A group of these drawings, of architectural monuments destroyed in the present war, has been reprinted without

advertising and is offered free to those who write the company for it. Subjects range from the town of Coventry, England, destroyed in the air blitz, to the Library of of the University of Louvain, Belgium—destroyed in 1914, rebuilt by Americans, and destroyed again in 1940. Churches, cathedrals, London's Temple Court, hospitals—all are included, from England, France, Belgium, Holland, and Russia.

Operate Garage Doors by Barber-Colman RADIO CONTROL

JUST press a button *on the instrument panel of the car*—and the garage door opens, or closes, from a radio impulse. The car can be standing still in the garage or *moving down the driveway*. Now this is no new gadget; it was played up in the feature sections 'way back in 1928. But it has been vastly improved and simplified since then, to the point where it is reliable, easy to install and service, and *so lowered in cost that owners of even modest homes can afford it*. Get our literature now, describing the operation and the safety and privacy features . . . so that you will be ready to specify "Barber-Colman RADIO CONTROL" for garage doors *when the right time comes* . . .

BARCOL

FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

BARBER-COLMAN COMPANY
100 MILL ST. • ROCKFORD, ILL.

Periodicals

The periodical reviews were written by Margaret Greenough King.

South America

REVISTA DE ARQUITECTURA (May Issue). This Argentine publication falls below last month's in the worth of published material. Horacio Moyano Navarro writes on the manifold aspects of architecture and stresses the fact that it is the fine combination of art and technical knowledge. He questions the relation of school courses to actual designing for construction.

One of the best things in this number is an apartment house by H. Elizalde and R. Correa Lima, which takes advantage of the law which says that a building may be cantilevered over one-third of the sidewalk area. In the cramped, narrow area of this apartment site the allowance for a balcony under this ruling makes a substantial difference in total renting space. The Petit Hotel by Ricardo U. Algier is designed with a pseudo-mansard roof and poorly circulated planning. There are several small houses of the type done in this country as well as in South America by men who want to assume "modern," those who can't break from the traditional, and don't understand clean cut planning. Four ranch houses using modernistic clichés and

(Continued on page 96)

To Architectural Men In The Service

You architects, designers, and draftsmen who now wear the uniform of the military and naval forces of the United States constitute, for the time being, a group apart from the rest of the profession. Whether you are out of the country on the active battle fronts or serving in some technical capacity within our borders, your only business now is to concentrate directly on the job of winning the war. To be sure, many men who are still rated as civilians are also devoting their full energies to this end, but you are more completely removed from the affairs of civil life than they. It is all too easy under these circumstances to lose, or at least to weaken, your contacts with the professional life you have left behind.

One day, God willing, you will return to take your places in a postwar world of peace and constructive effort. It is important that you should not, through the exigencies of war, be deprived of a voice in the shaping of that world. You must have many ideas, both general and specific, about what you would like to find when you return home, and about the things you would like to accomplish when you resume the practice of architecture. This is to ask you to express those ideas to us and to your fellow architects who may be entrusted with the responsibility of seeing that they are given full attention while you are still absent during the preliminary stages of planning for peace.

What about reemployment? The period of readjustment will be unprecedented. After the last war the problem of demobilization was relatively simple. Then, we had only about 25% of our manpower to reemploy, including both the military and war industry. This time we will have at least 70% of our nation's productive workers to take care of. Millions will have to be absorbed as rapidly as possible into manufacturing, transportation, and general business; millions more must look to the building industry with its broad programs of construction of all types. So great will be the demand for jobs that all the planning of both public and private building projects that can be done by all the architects and engineers available will not be too much to satisfy the need. Government and business agree that *the need must be satisfied* and that *"full employment" must be the goal.*

Under these conditions, none of you need worry lest there might not be enough architectural activity to go around. It is true that a great deal of work must be laid out before you can return home, but when you get here there will still be plenty for you to do. The rapidity with which you can get into it will depend on how well the machinery is set up to establish opportunities for employment or new association in practice with the least loss of time. This is something for your professional societies to tackle and we are glad to report to you that first steps are now being taken in this direction. Any suggestions you may make as to methods for doing this highly necessary job will, however, fall upon receptive ears.

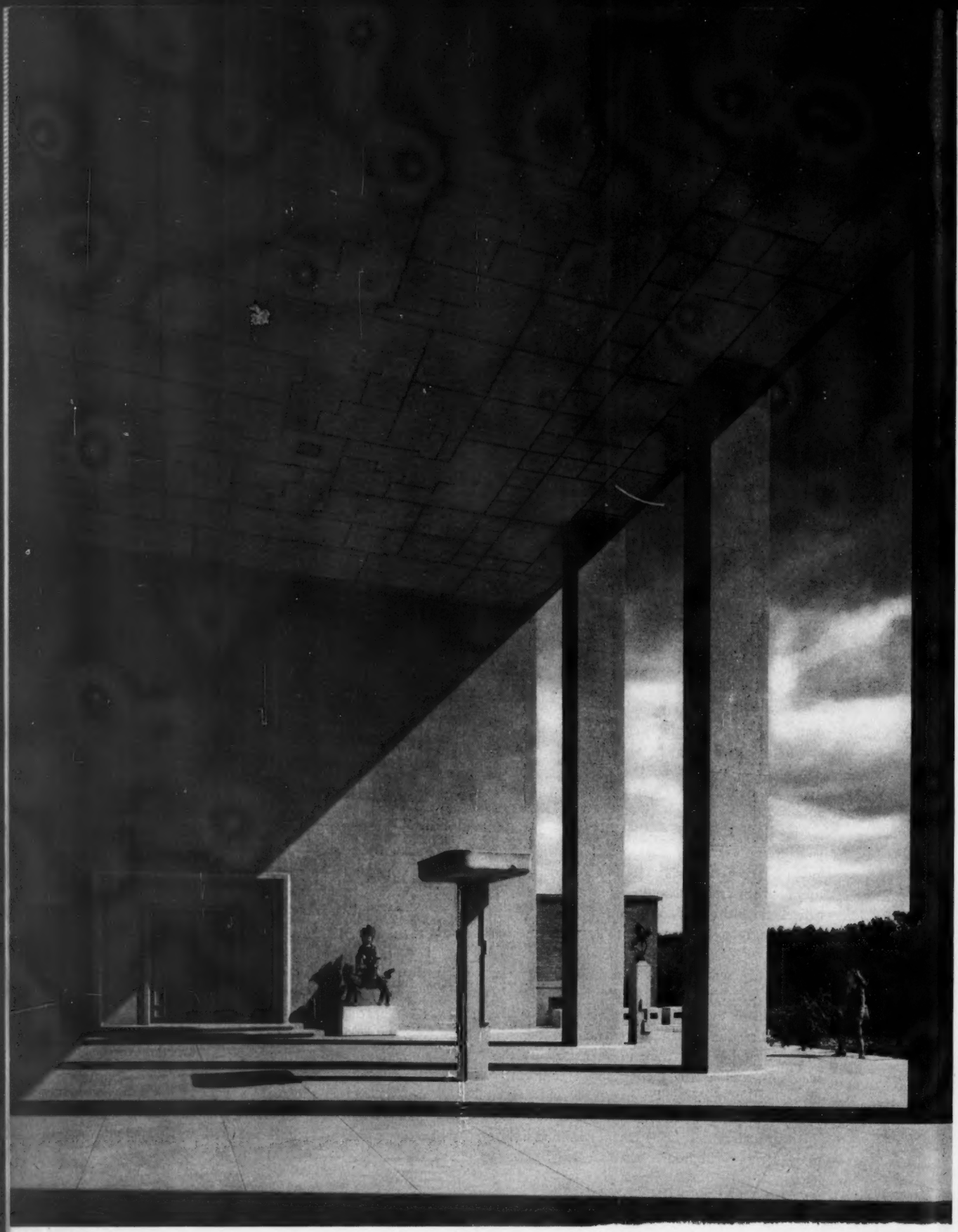
What about the profession itself? You can look at it now with a perspective impossible when you were intimately an active part of it. You have had a chance to observe how its capacities as well as its deficiencies have shown up in the process of meeting the national emergency. Would you like to see it changed in any way or would you be satisfied to see it drop back into its prewar ways of doing things? Many questions will occur to you relating to the effectiveness of professional organization, the education of young architects, the matter of cooperation between architects and engineers, the balance between large and small offices, the entrance of architects more actively into the field of community planning. Each of these points involves problems that must be solved, and you should have something to say about the solutions.

And, finally, what about Architecture? The war has given us all a chance to look back over the things that were done in recent years and to decide whether or not we are satisfied with the trends. We sense an increasing perception of the follies of stylism, whether old or new. We have followed with interest the growth in America of a more fundamental approach to architectural design in which the three eternal attributes of fitness, strength, and beauty were to be gained by thorough planning, sound knowledge of construction methods and materials, and a true feeling for basic form, color, texture, proportion, rhythm, contrast, and other esthetic elements, rather than by leaning lazily upon what better men devised in the past. Are you going to be happy to return after the war to the old eclectic method of imitation and secondhand creation, or are you going to insist upon a resurgence of the art of building into an Architecture worthy of the brave new world we all want to make for our children?

The old year is almost gone. The new year will bring, we dare to hope, the reality of victory in Europe and the promise of victory in the Orient. With this victory will come the real challenge of our times—Can we all work together to build a world better than we had before?

We on the home front look to you, who are earning the victory, for your views on what is to be done with it. So speak up now, while there is yet time for your ideas to be heard.

Kenneth Reid



Photos of Cranbrook Museum & Library by Hedrich-Blessing

The large open loggia which shelters the entrances to the Museum and Library forms the central architectural feature of the building, tying it to the axis defined by the fountains and pools extending to the north and south. It provides a spacious outdoor room of noble proportions from which to contemplate the formal gardens with their rich display of sculptures by Carl Milles and others. The paving is of hard limestone, the walls and columns of Mankato stone, and the ceiling of cement with incised pattern. The central pedestal supports a concealed lighting fixture.

Museum and Library, Cranbrook Academy of Art, Bloomfield Hills, Mich.

Eliel Saarinen, Architect

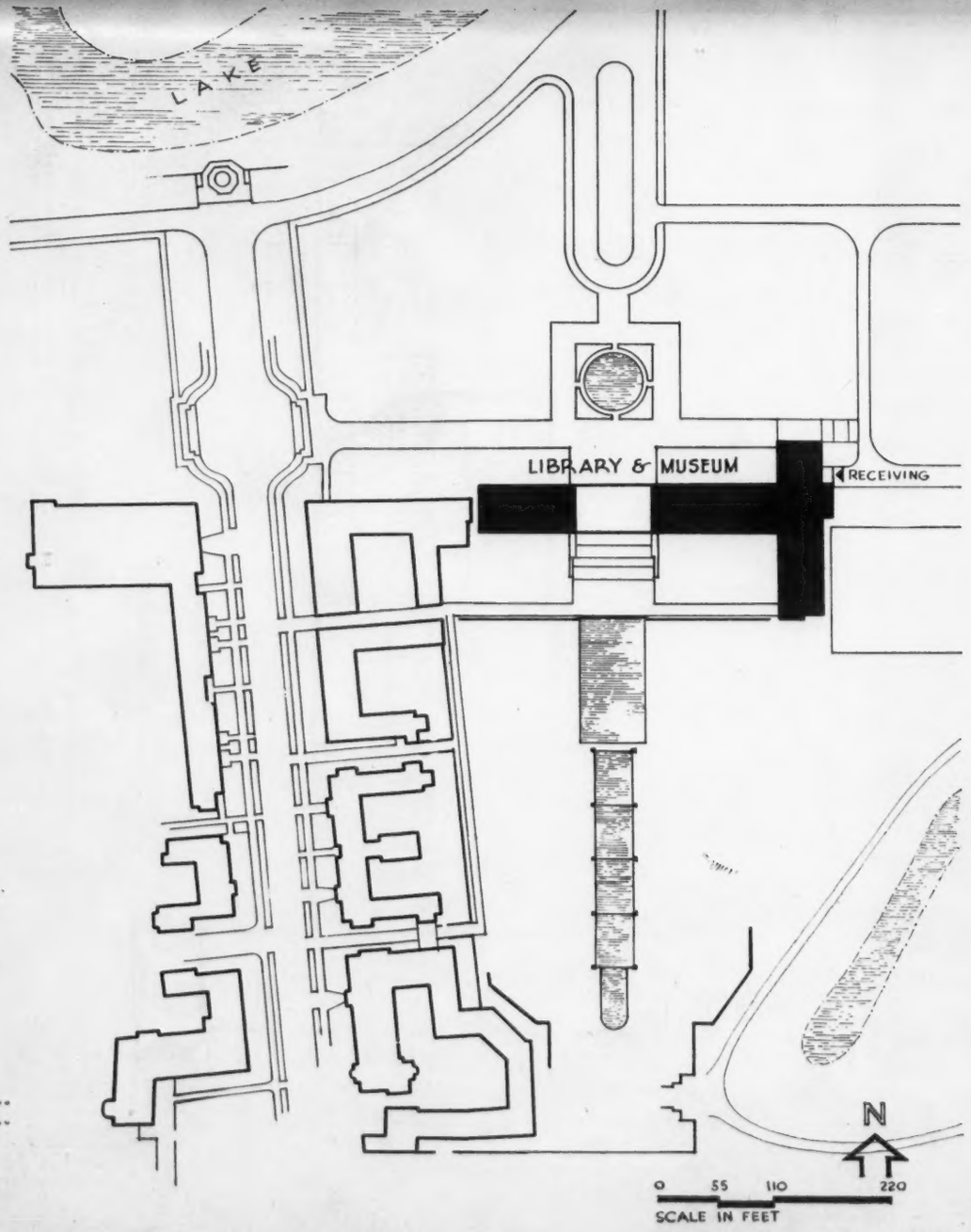
We are proud to present on the following pages the most recent architectural addition to the great educational center known as Cranbrook; namely, the Museum and Library of the Cranbrook Academy of Art. This building, completed in 1941, was designed by Eliel Saarinen. It houses a remarkable collection of antique and modern works of art, collected over a period of years by George G. Booth, founder of Cranbrook, and also a library of over six thousand volumes chosen to serve the needs of the architects, artists, craftsmen, and students of the school. Both the Museum and Library are open to the public.

Mr. Booth's three hundred acre estate at Bloomfield Hills, Michigan, has been developed gradually over the last twenty years into a world-famous educational institution. It now includes the Cranbrook School for boys, the Kingswood School for girls, the Brookside School for young children, the Cranbrook Institute of Science, Christ Church of Cranbrook, and the Cranbrook Academy of Art.

To visit Cranbrook is like coming upon an oasis of order and beauty set apart from the confusion and ugliness that surround so much of urban life. Here in a restful, serene atmosphere, presided over by some of the most distinguished artistic spirits of these times, the boys and girls and young men and women who attend the several schools pursue their studies.

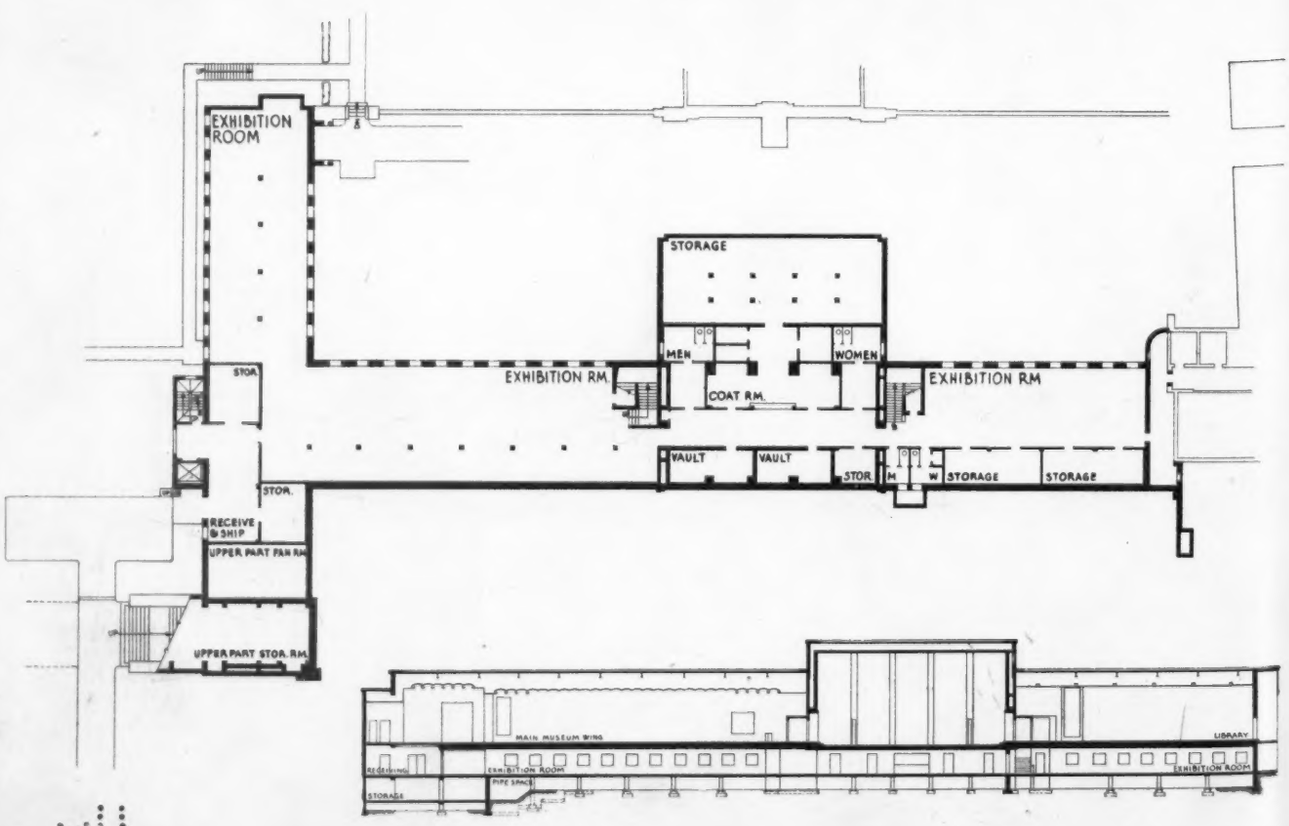
The new building suggests formality, yet it is subtly composed as a part of an informal scheme. Its rather severe quasi-classic lines make it an appropriate background against which to display a number of strong and vital sculptures, principally the work of the great sculptor, Carl Milles, who has been in residence at Cranbrook since 1931.

Saarinen's fine sense of space and form and of the relationship of building masses to the areas in which they are set is felt by the visitor and is even conveyed, though somewhat imperfectly, by this photographic presentation. The building is thoroughly functional, yet there is more to it than mere functionalism. It has also a quality of external monumentality achieved principally by simple basic architectural means, disturbed only occasionally by bits of playful decoration.



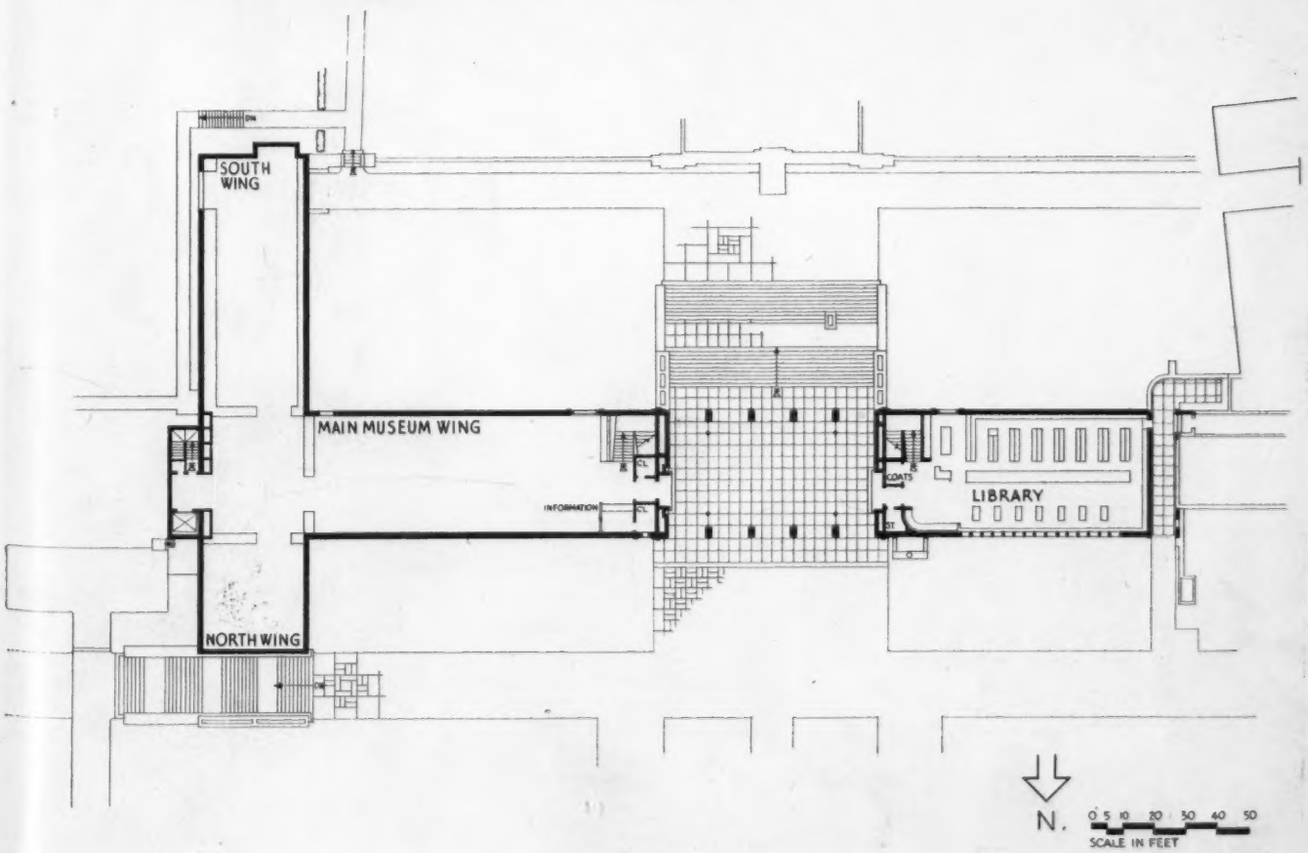
The building, as seen from the terrace of Mr. Saarinen's residence, throws a protecting arm around the "formal" garden with its succession of pools and fountains. When the young trees flanking the pools attain their full growth the effect of organic unity of building and grounds will be increased. From the loggia, looking south along the axis, a replica of Milles' tremendous "Europa and the Bull" appears in the foreground with the tritons of the original Halmstad fountain regrouped in the first pool.

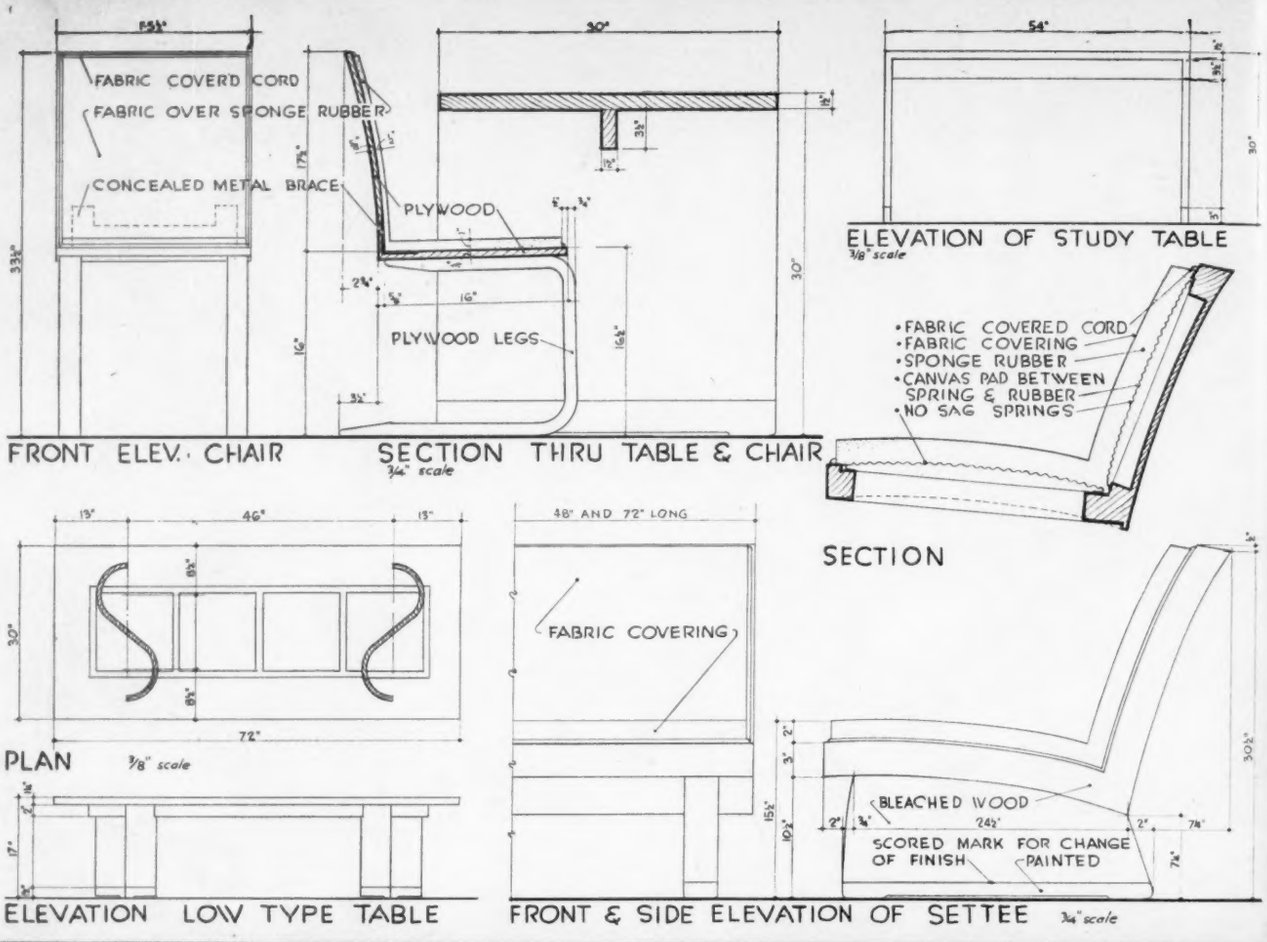
Detail of the Loggia and steps from the south.

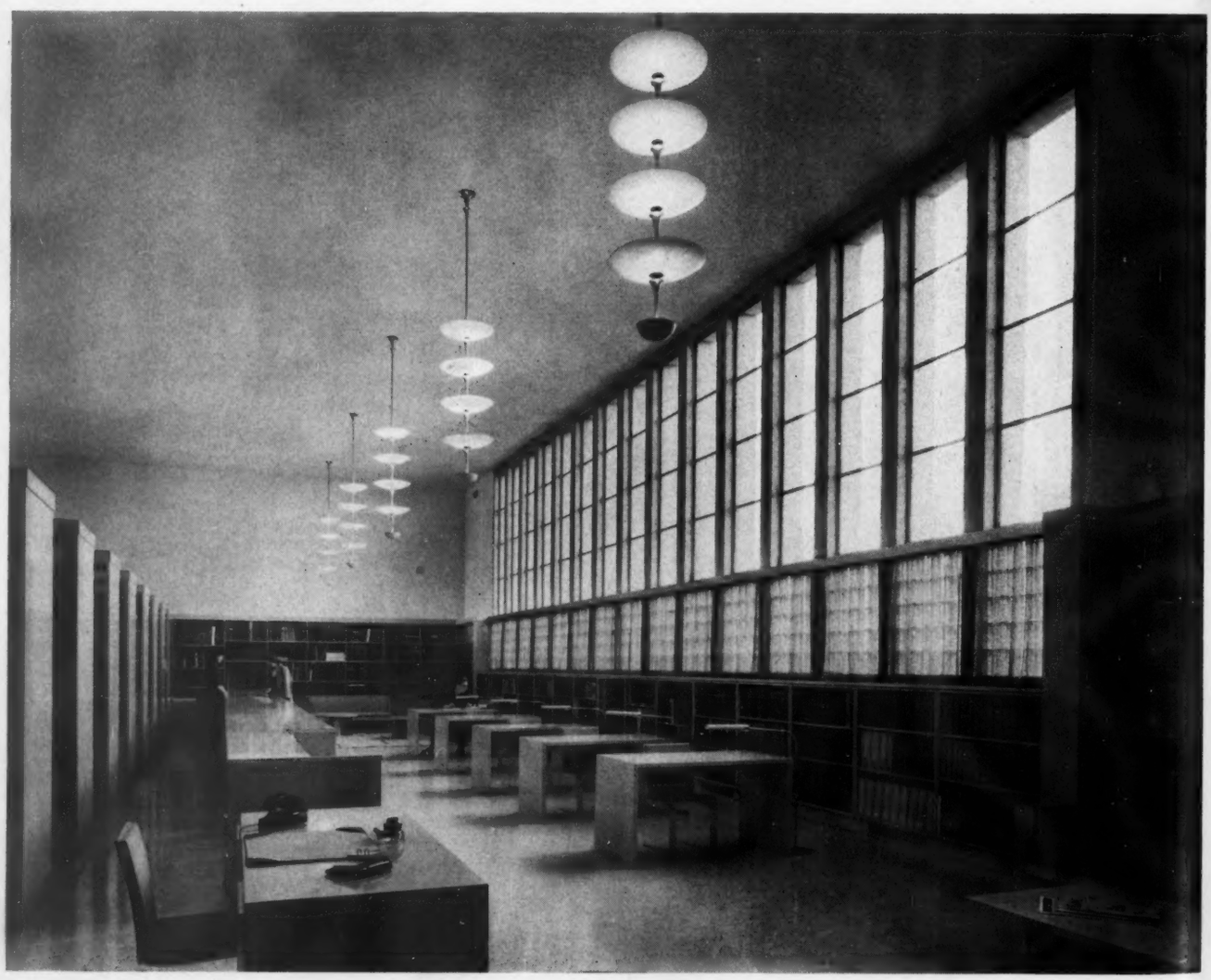


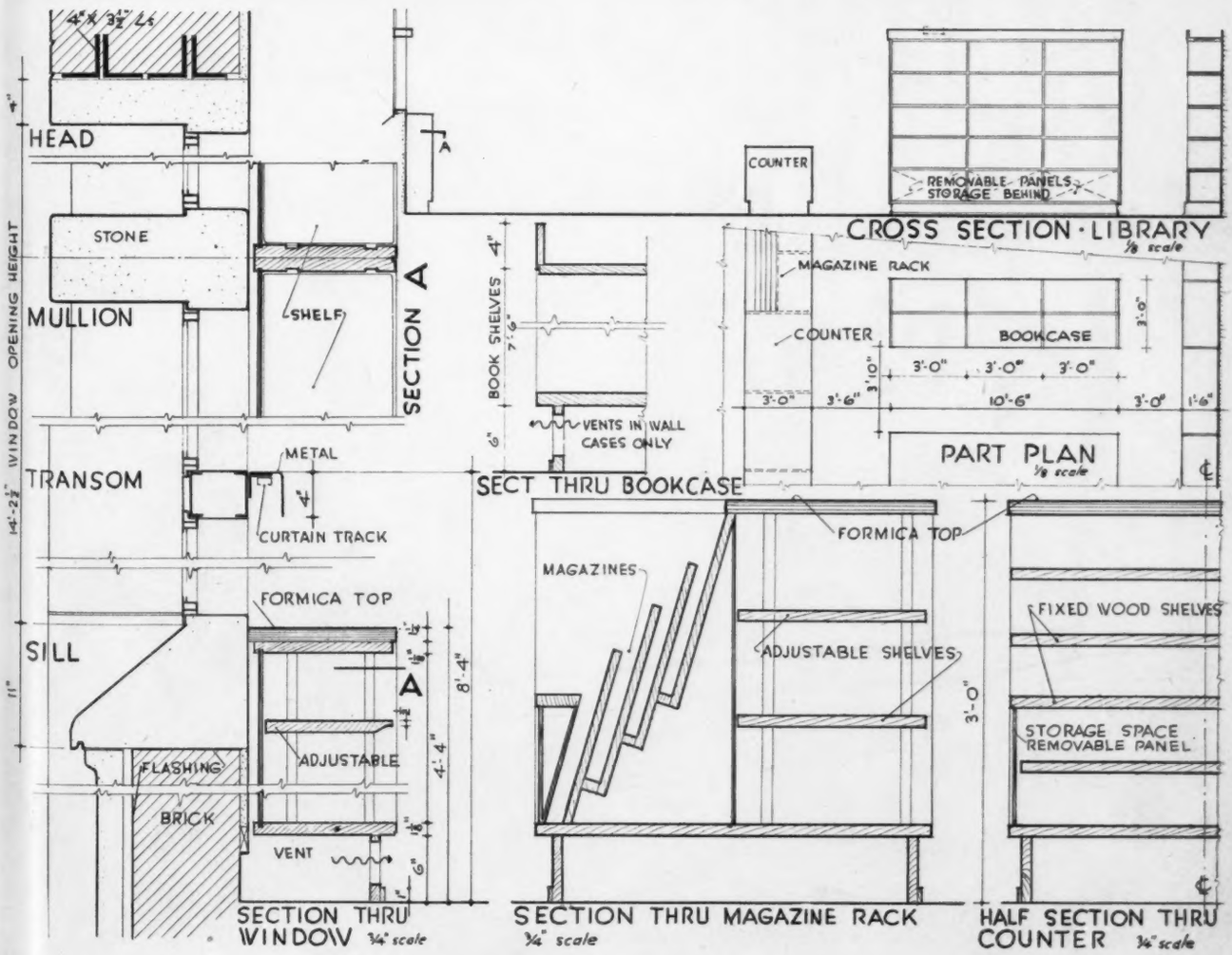
To the north of the Museum and Library there will eventually be additional buildings enclosing a quadrangle with a rearranged version of Milles' "Orpheus" fountain (seen to the left, below) as its central feature. The scale of the paved walk, with its massive cement slabs, is beautifully related to the quadrangle itself and to the building.

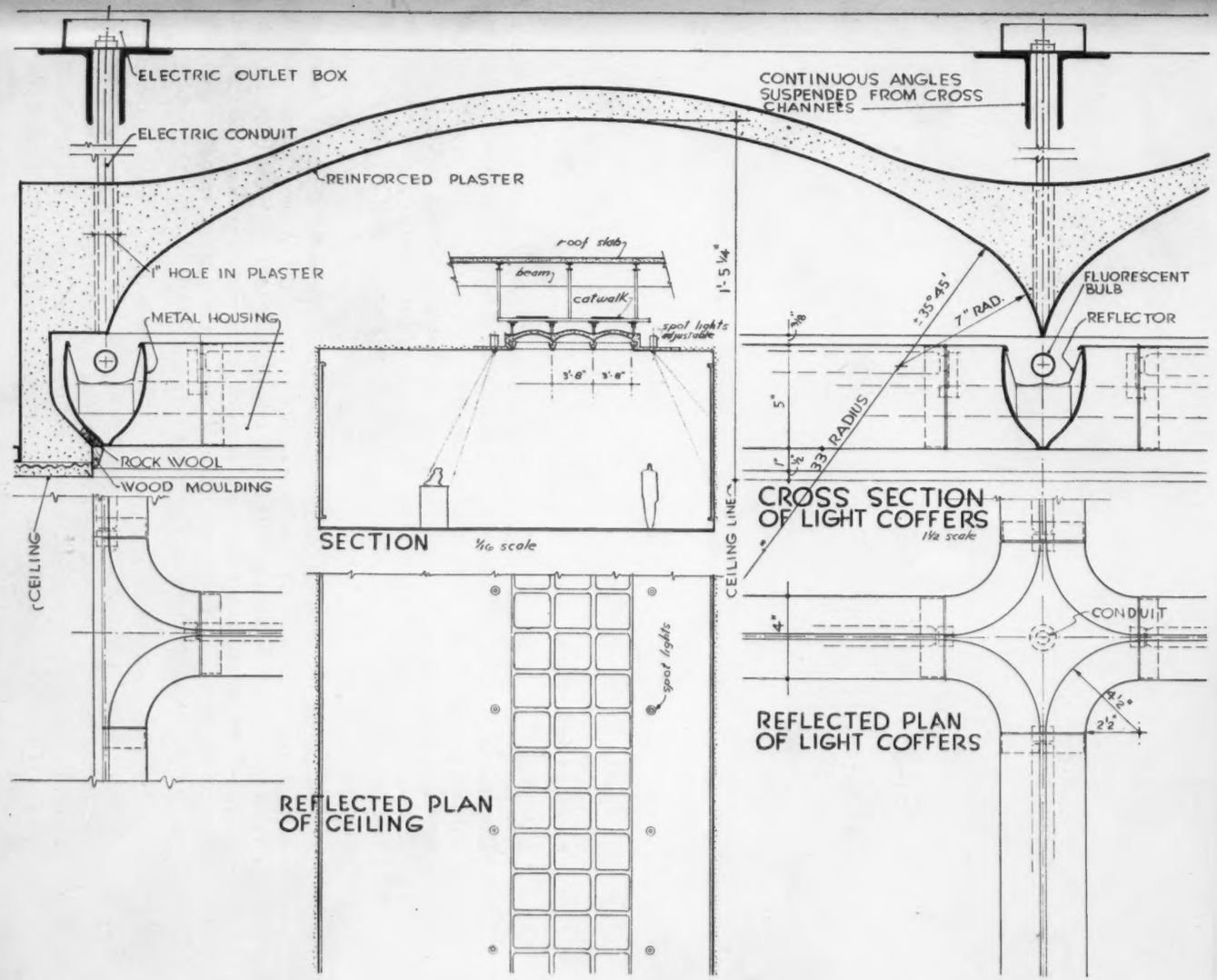
Academy Quadrangle on north side of Museum and Library.




FABRIC COVERD CORD
FABRIC OVER SPONGE RUBBER
CONCEALED METAL BRACE
PLYWOOD
PLYWOOD LEGS
FRONT ELEV. CHAIR
SECTION THRU TABLE & CHAIR
3/4" scale
ELEVATION OF STUDY TABLE
3/8" scale
• FABRIC COVERED CORD
• FABRIC COVERING
• SPONGE RUBBER
• CANVAS PAD BETWEEN SPRING & RUBBER
• NO SAG SPRINGS
SECTION
PLAN
3/8" scale
ELEVATION LOW TYPE TABLE
48" AND 72" LONG
FABRIC COVERING
BLEACHED WOOD
SCORED MARK FOR CHANGE OF FINISH
PAINTED
FRONT & SIDE ELEVATION OF SETTEE
3/4" scale




HEAD
STONE
MULLION
SHELF
SECTION A
TRANSOM
METAL
CURTAIN TRACK
FORMICA TOP
SILL
FLASHING
BRICK
ADJUSTABLE
VENT
SECTION THRU WINDOW ¾" scale
BOOK SHELVES
VENTS IN WALL CASES ONLY
SECT THRU BOOKCASE
COUNTER
REMOVABLE PANELS STORAGE BEHIND
CROSS SECTION · LIBRARY ⅛ scale
MAGAZINE RACK
BOOKCASE
PART PLAN ⅛ scale
FORMICA TOP
MAGAZINES
ADJUSTABLE SHELVES
SECTION THRU MAGAZINE RACK ¾" scale
FIXED WOOD SHELVES
STORAGE SPACE REMOVABLE PANEL
HALF SECTION THRU COUNTER ¾" scale



The finely proportioned Museum interior is arranged for artificial lighting which can be controlled accurately to give each item of the collection its own special conditions. General illumination comes from the grid and reflecting coffers above, while adjustable spotlights throw warm rays on the individual pieces. The various cases and blocks are portable so that there is complete flexibility in rearranging the exhibits. Great care has been exercised to eliminate conflict between the various objects so that the visitor may give each piece his full attention without being distracted by its neighbors. The main museum wing appears above in a view looking toward the transverse north and south wings. Below is a view back towards the entrance with the information desk at the right. Floor is Roman Travertine Marble; walls are cloth covered plywood; ceilings are painted plaster. Colors are warm grey.

Saarinen and Milles

One of the remarkably fine things about the Cranbrook development is the collaborative association it has fostered between the two internationally renowned artists—Eliel Saarinen, architect, and Carl Milles, sculptor. These men, generally acknowledged as world leaders in their respective fields, have worked closely and sympathetically together at Cranbrook since 1931, not only as teachers of talented and ambitious youth but as sensitive, creative spirits who have designed and built the physical environment of the school—in itself a potent educational influence.

In 1934, through the farsighted generosity of George G. Booth, the Cranbrook foundation acquired from Milles the most complete collection of his later works ever brought together. The nucleus of the collection was the Jonah fountain, completed by Milles in 1932 for the Kingswood School, as his first American commission. Subsequently, replicas of several of his larger works have been recomposed under his direction and given, in collaboration with Saarinen, an outdoor setting where they enhance the architectural beauty of Cranbrook.

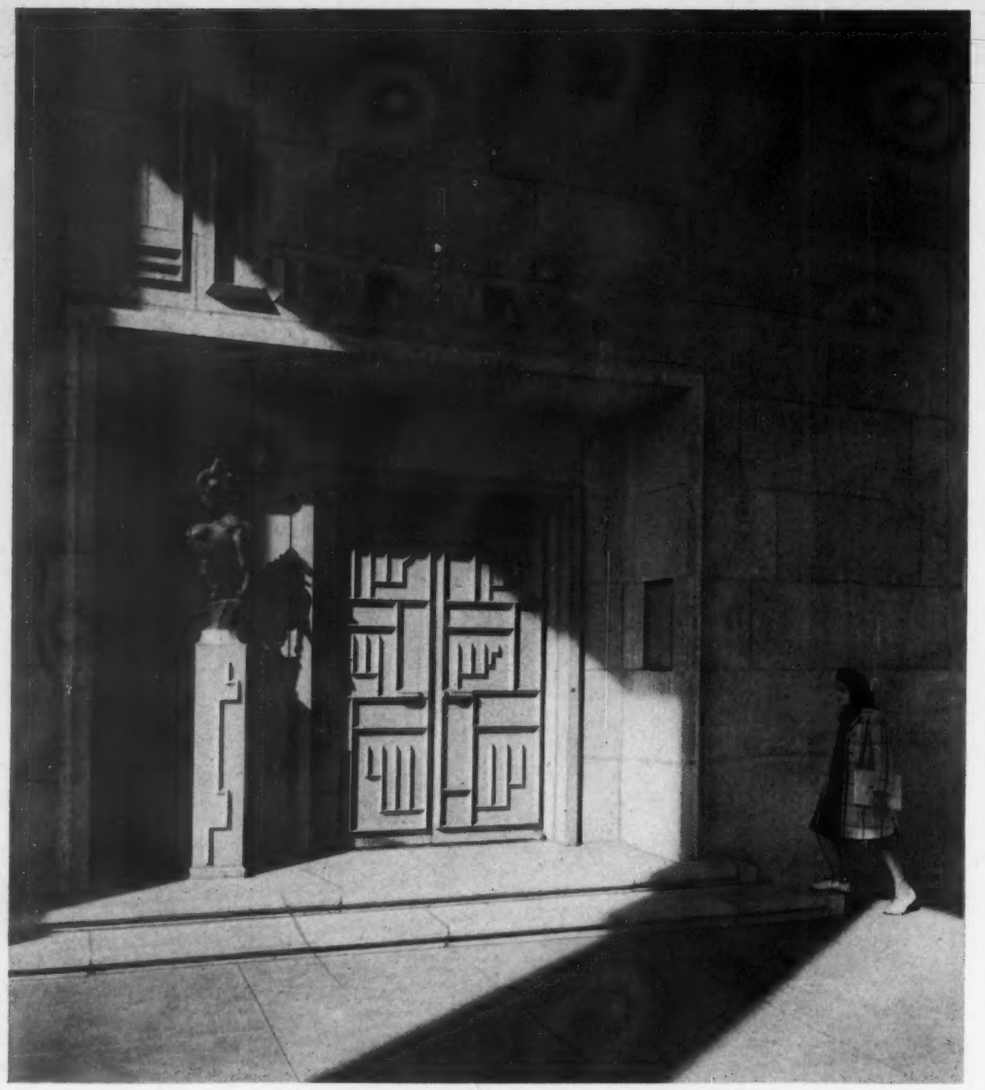
The Cranbrook version of the great Europa fountain—the original of which was erected in the market square of Halmstad, Sweden, in 1926—appears above and on the facing page. Here, the principal feature, Europa and the Bull, stands on the terrace facing south, while the four tritons, accompanied by the playful dolphins and other water creatures, disport themselves in the first of a series of pools. The whole group conveys a sense of forever moving rhythmically

down the axis of the garden. This dynamic quality is of course heightened by the carefully designed jets of water and the flow of the pool itself—factors which Milles loves and repeatedly employs most skilfully.

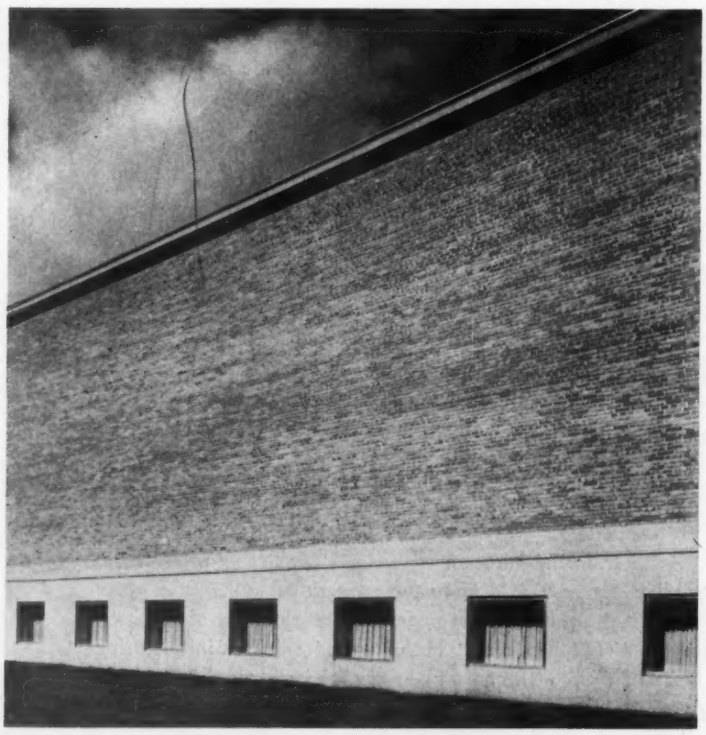
On the other side of the loggia, to the north, another magnificent regrouping of figures from one of Milles' major works—the Orpheus fountain in Stockholm—becomes, minus its heroic Orpheus, a fresh and sublimely poetic composition in vitalized stone and upward-striving water. It is illustrated on page 49.

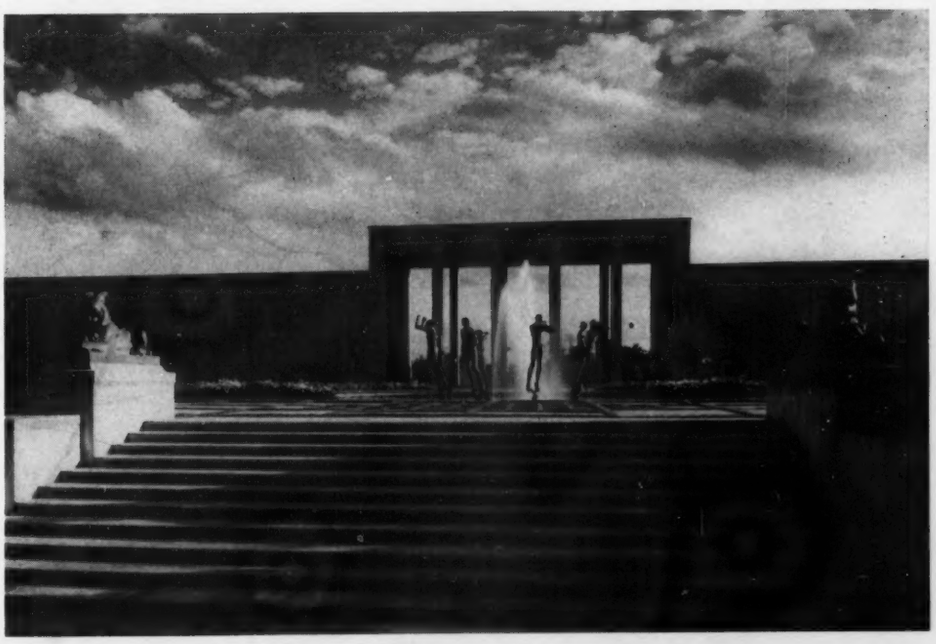
A number of other works by Milles are to be found in complementary juxtaposition with the Cranbrook buildings. A bronze replica of his famous Folke Filbyter, at smaller scale than the original which forms the central figure of the Folkunga fountain in Linköping, stands on a pedestal in front of one of the stone columns on the southern side of the loggia, as shown on the cover of this issue.

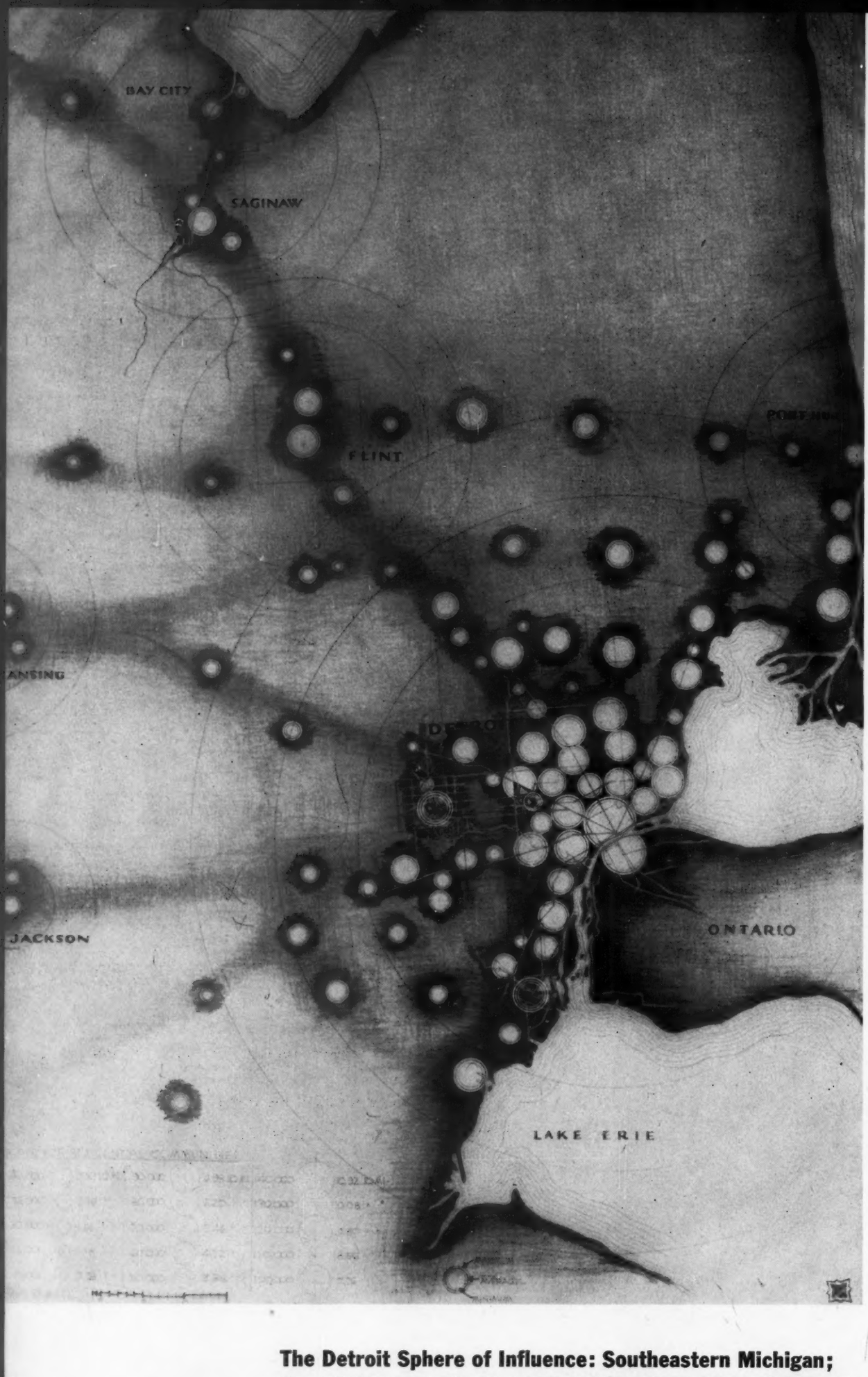
That Saarinen and Milles, kindred souls from the northern countries, share a love of the principles of organic beauty to be found in nature is evident to the most casual observer of these products of their joyful association. Both men have a strong sense of the rightness of life itself and of living things in the universal scheme. Both take a sly but unmalicious delight in tincturing their work with a cosmic but very human sort of humor. These qualities emerge differently in the creations of the two, yet they are there for the discerning eye to discover.



The Library entrance with its geometrically patterned bronze doors contrasts interestingly with the masterly handling by Saarinen of large, simple, textured surfaces of brick and stone. On the facing page, a rearrangement of the subsidiary figures of Carl Milles' "Orpheus" fountain makes at Cranbrook a fresh and inspiring composition.







The Detroit Sphere of Influence: Southeastern Michigan; Organic Decentralization 1990; Urban Population 5,000,000

Detroit Planning Studies

Introduction

The town-designer must not be a prophet.

But the town-designer must have the vision to free himself from the petty things of today and tomorrow so as to be able to see things in a broader scope and longer time perspective.

And the town-designer must have the three-dimensional imagination to visualize his cities — and the individual community-units within these cities — as they may gradually evolve toward proper architectural formation and unity.

The town-designer must have two main objectives, which are both imperative:

First, he must have the sociological objective: so to design his cities that life there can be and remain humanly livable in the best sense of the word and that a good correlation between living and working can be both attained and maintained.

And second, he must have the technically practical objective: so to design his cities that he, so to speak, keeps the doors open for future possibilities of arranging things in accordance with future demands.

In the designing of a home, there are two particular things which must be considered from the very start: first, the people who are going to occupy this home; and second, the land-area on which this home is going to be erected.

In the designing of a city the same holds true, for here, also, are two prime things to be considered: first, the people who are going to inhabit the city; and second, the land-areas on which this city is going to be developed.

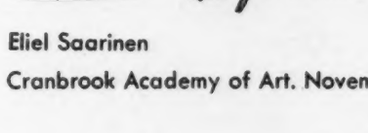
The former problem — that of the home — is a "closed" problem inasmuch as the home, once erected, is a complete fact.

The latter problem — that of the city — is an "open" problem inasmuch as the development of a city means a gradual evolution during a long period of time.

Consequently, in the case of the city, there must be made at the very beginning a carefully calculated study of these two mentioned elements — the "human element" and the "geographical element" — through which to foresee what the changes, fluctuations, and possibilities might be within a certain period of time of the city's development.

In his studies of the "Detroit Sphere of Influence" — and under the leadership of the Cranbrook Academy of Art — Mr. J. Davidson Stephen has approached the problem in the above mentioned manner.

In the case of any urban development, I think, this same approach is most essential.



Eliel Saarinen

Cranbrook Academy of Art. November, 1943

The Detroit Sphere of Influence

This map was made after study of geographical and social factors and U. S. Census Bureau statistics of 1870 to 1940. Estimates of minimum, average and maximum increases, shown by concentric circles for each community, were made of probable growth and distribution of the population up to 1990. The inter-relation of manufacturers of automobiles and automotive equipment located here was also considered. "Urban Population of 5,000,000 in 1990" is based on the average increase estimate of population growth and on increase in area of the urban districts by 1990. "Urban Population" includes residents of metropolitan areas of the cities shown, as extended in 1990 and as indicated by the larger concentric circles.

Small white circles indicate living areas required for each community. Spaces between communities would protect living areas and provide sufficient room for main highways, airports, and industries—principally small industries to employ residents of adjacent communities. The design pattern formed by the distribution of these communities indicates a planning method whereby the individuality of each community can be retained or restored, as contrasted with the present contiguous growth of our metropolitan areas. In the event of future aerial bombardment, such planning would provide a "dispersion" factor.

DESIGN PATTERNS;
THE CITY OF DETROIT. 1942
SHOWING
1 THE RECTILINEAR STREET PATTERNS
2 THE MAIN DIAGONAL STREETS
3 THE DOWNTOWN AREA (L'ENFANT PLAN)
4 THE RAILROAD PATTERN
2 MILES
DETROIT TERMINAL
GRATIOT
MICHIGAN CENTRAL (NORTH)
E.J. & E. DETROIT HURON LINE
DET. TERMINAL M.C.
JEFFERSON
N.Y.C. M.C. CANADIAN RRS.
DETROIT RIVER
GRAND TRUNK
WOODWARD
GRAND BOULEVARD
FORT
MICHIGAN
NEW YORK CENTRAL
MICHIGAN CENTRAL
P.M.
DET. TERM.
PENNA TERMINAL
GRAND RIVER
DEARBORN
N.Y.C. M.C.
DETROIT TOLEDO & IRONTOWN
WABASH
MELVINDALE

Detroit and the Detroit Area

by J. Davidson Stephen

The studies of Detroit and the Detroit Area represent the work of about one year at the Cranbrook Academy of Art, Bloomfield Hills, Michigan, under the direction of Eliel Saarinen. This work is separated into progressive stages, as follows:

1. *DETROIT; A Preliminary Study of the City, 1942.*
2. *THE REGION; Studies for "The Detroit Sphere of Influence, 1990."*
3. *LIVING AREAS; The Development of the "Area Scale."*
4. *INDUSTRIAL AREAS; Relation to Living Areas.*
5. *COMMUNITY PLANNING; Plymouth, Michigan, 1990.*
6. *NEIGHBORHOOD PLANNING; The New Center of Plymouth, 1990.*
7. *DETROIT; A "Master Plan" for Community Development, 1990.*

Each of these stages will be discussed in the following. Some of them are more important than others and will receive more attention in the text and will have more illustrations. This article contains only the first portion; the remainder will appear in subsequent issues.

DETROIT: A Preliminary Study of the City, 1942

In his book, "The City," Saarinen states that city planning may be divided into two parts with reference to the actual work of planning, i. e., "Data Research" and "Design Research," and likens Design Research to the experimental or research laboratory of a large industry. In Design Research or "Civic Design," Saarinen feels that the architect can contribute a great deal to the city planning picture, and by the addition of creative imagination, supplement the Data Research that has already been done by many city planning commissions and project the work forward to provide for better living conditions in well-planned communities that are properly related to each other and to the surrounding area. Such relationship is described as "Organic Decentralization."

Data Research:

Availability of data is an important consideration at the start of a planning study. It was for this reason that Saarinen suggested Detroit, Cranbrook being about 20 miles from the city. In point of fact not much material was available; the Detroit City Planning Commission was beginning its studies for a Master Plan for Detroit, and there was no regional planning body, although the Tri-County Regional Planning Council was initiated in June, 1943. The principal sources were:

The Burton Collection at the Detroit Public Library (historical maps),
Maps of the City prepared by Walker Outdoor Advertising Company,
Regional Map of the Huron, Clinton Metropolitan Authority, and the
Booklets: "A Region in Turmoil," by Harry F. Grayson, Detroit Edison Co., and
"Proposals for Down-Town Detroit," by the Urban Land Institute.

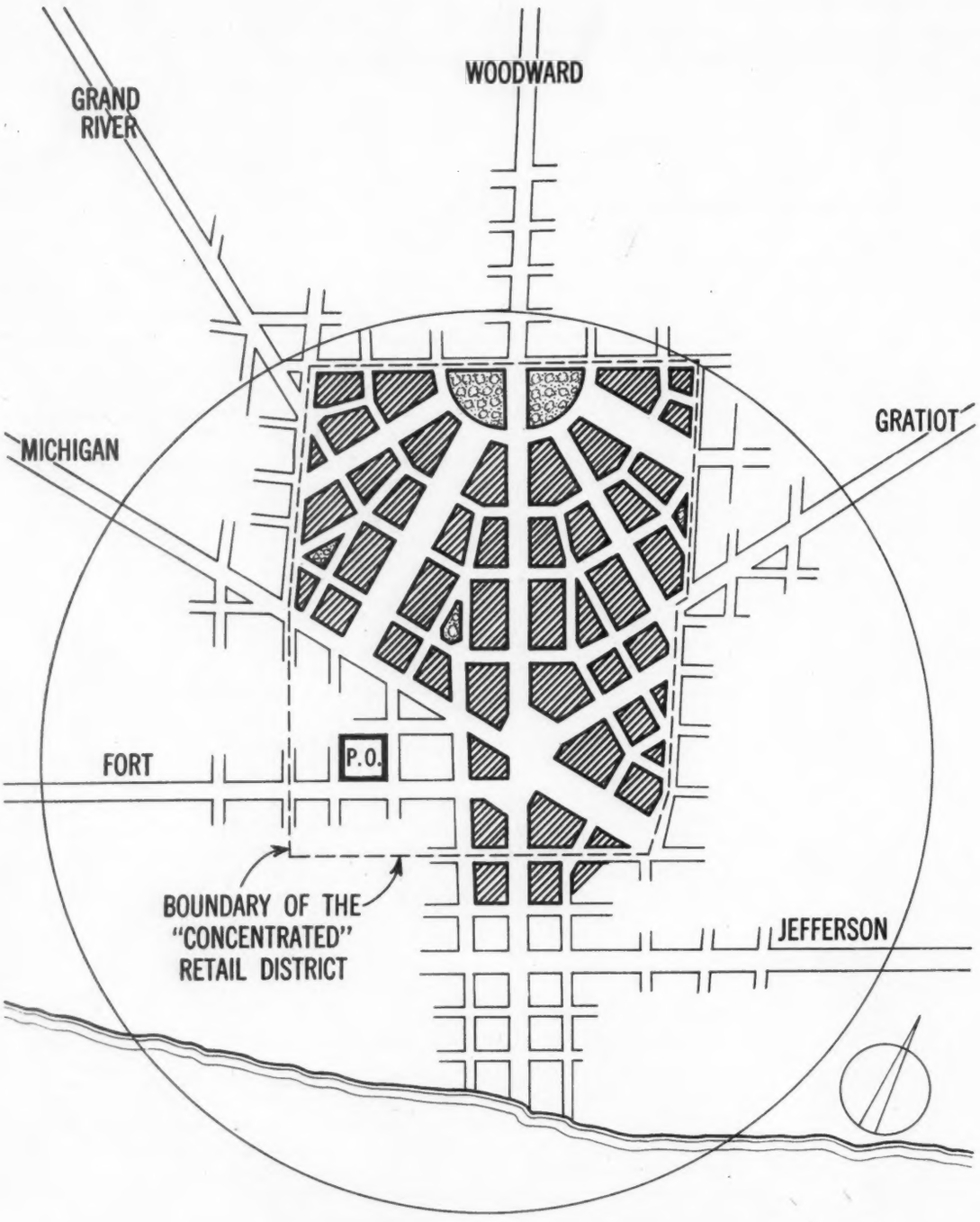
Design Research:

The design pattern or patterns of Detroit, on opposite page, shows the following:

1. The Rectilinear Street Patterns: There are two distinct patterns: the earlier street pattern running at right angles and parallel to the Detroit River, following more or less the lines of the French Land Grants that were described as so much river frontage and thence running back varying distances from the river measured at right angles to it; and the second or later street pattern that can be seen at the outskirts of the city that follows the system of mile-square sections having the State East-West Section Base-line along Eight Mile Road, the northern boundary of Detroit.

2. The Main Diagonal Streets: This diagonal pattern now overlays the rectilinear street patterns mentioned above. The diagonal streets, Michigan, Grand River and Gratiot, were laid out by Military Engineers about 1830-1840, as were Fort Street (west), Woodward Avenue (north), and Jefferson Avenue (east); the last three are continuations of the earlier rectilinear street pattern.

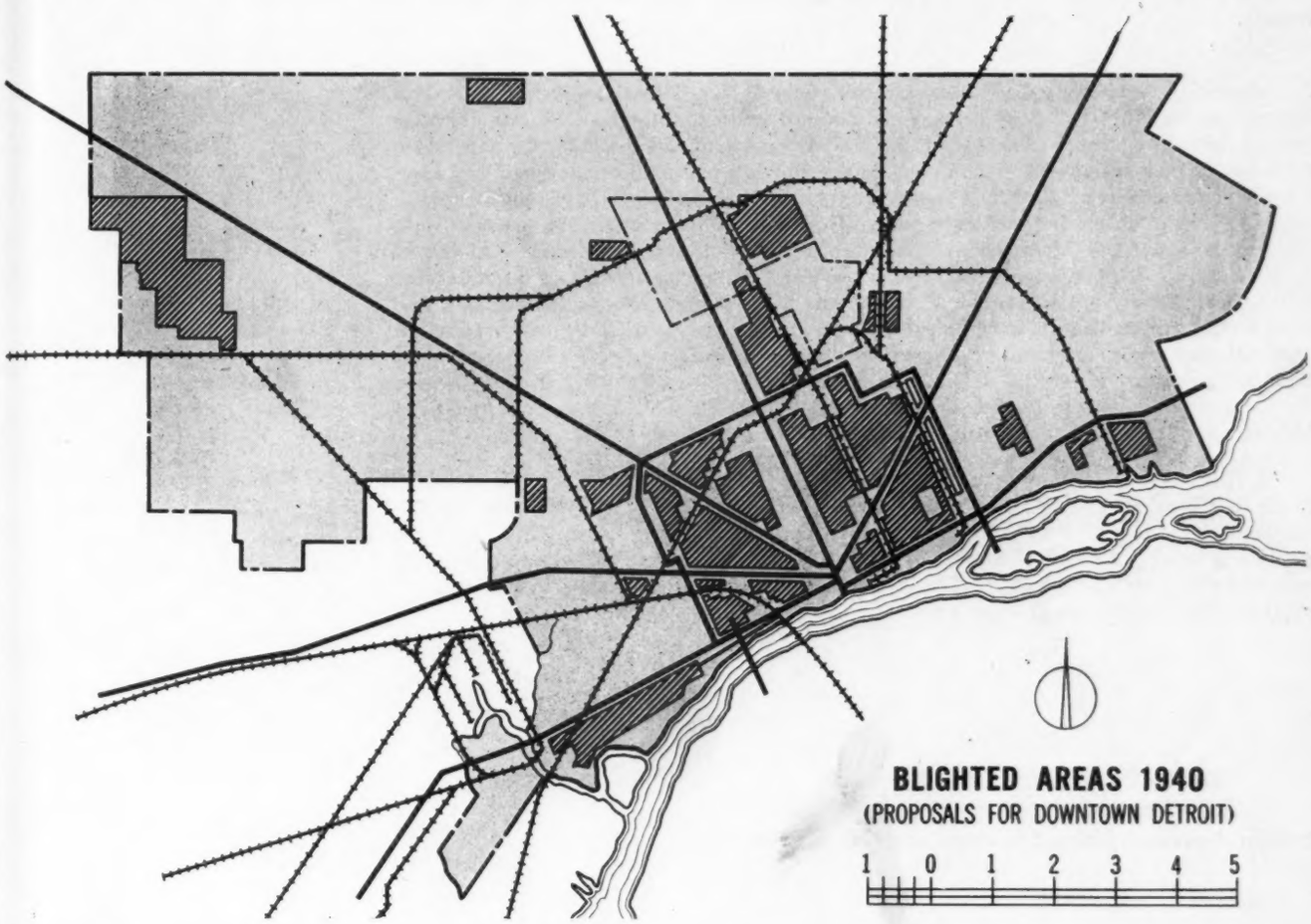
3. The Down-Town Area; the L'Enfant Plan: The L'Enfant Plan, better known as the Governor and Judges' Plan, was conceived by Woodward about 1807, following Woodward's stay in Washington, where he came in contact with L'Enfant and his plans for Washington, D. C. The Detroit version, fortunately or unfortunately, was never completed in its entirety. The executed portion of Woodward's plan occupies a fairly large portion of the present down-town business area; it presents a third street pattern in the plan of Detroit and represents, incidentally, a fairly large portion of the total assessed valuation of the city. The L'Enfant Plan is shown below.



THE DOWNTOWN AREA (L'ENFANT PLAN)

SCALE 0 500 1000

Blighted Areas, 1940



4. The Railroad Pattern: In addition to the rectilinear street patterns, the diagonal streets, and the pattern of the L'Enfant Plan, the railroad engineers have added the "railroad pattern," cutting across rectilinear streets and diagonal streets in several instances, i. e., the railroad lines of the N.Y.C. and the D.&T.S.L. running from the River Rouge Area across the city toward the northeast and through one corner of the City of Hamtramck to connect with the M.C. (north and the G.T. (Port Huron Line). Later the Detroit Terminal Railroad was planned and it ran around the then periphery of the city, passing through the northern part of the City of Highland Park (Ford Plant), and connecting via an extension of the M.C. (north) line with the industrial area in the eastern part of Detroit, known as Connor's Creek Area, and with the industrial area within Grand Boulevard, East, and east of Hamtramck and the Milwaukee Junction industrial area on the Grand Trunk Railroad that runs parallel to and east of Woodward.

Design Research; Blighted Areas:

Almost every city in the country will admit having some "Blighted Areas" and with the possibility of Federal money being available under the Wagner Bill, now under consideration, some of these cities almost seem to be eager to show the largest blighted area possible. The blighted area or areas, agreed upon by most of the civic bodies, real estate men, et al, is usually indicated on the maps prepared by the city planning commissions in red. It might be indicated in green inasmuch as these blighted areas could be considered as potentially "open areas." Figure above shows blighted areas in Detroit, 1940.

The "Blighted Area" shown in this illustration refers to blighted residential area for the most part. In time, blighted areas might also refer to blighted commercial areas and to blighted in-

dustrial areas. In connection with this illustration, and with reference to later illustrations showing the growth of Detroit from 1910 to 1940, it is interesting to note that a large portion of Detroit in 1910 is considered to be "blighted area" in 1940. Almost the entire area of the section known as "The Area within the Boulevards" is blighted, except for the narrow strip along both sides of Woodward Avenue and other portions adjacent to the railroad lines occupied by industry. A large portion of the blight has occurred within the 30 year period, 1910 to 1940; by inference, Detroit might be said to have the youngest blighted areas of almost any city in the country.

It is interesting to note that the various segments of the "blighted area" within the Boulevards almost completely fills the spaces between the diagonal streets and the railroads except for the commercial and residential areas along both sides of Woodward and the industrial areas along the railroads. This again refers to the Design Pattern and to the illustration on page 52, and raises the question as to whether the railroads and the industries are wholly responsible for the spreading of the blight, or whether the design pattern is partly responsible in that the spaces between the diagonal streets and the railroads are too small to permit of proper residential developments surrounded by green protective areas. Certainly modern industrial plants are in many cases an asset to a community and a challenge to surrounding living accommodations and to commercial areas serving the residents. Perhaps some of the railroad lines, particularly those serving the older industrial plants, can be removed when these industries re-locate their plants in more open areas in accordance with present day tendencies. Perhaps the diagonal streets, designed to serve the concentrated city, will lose their importance as main arteries, and other highways or superhighways will be needed to serve the newer industrial areas.

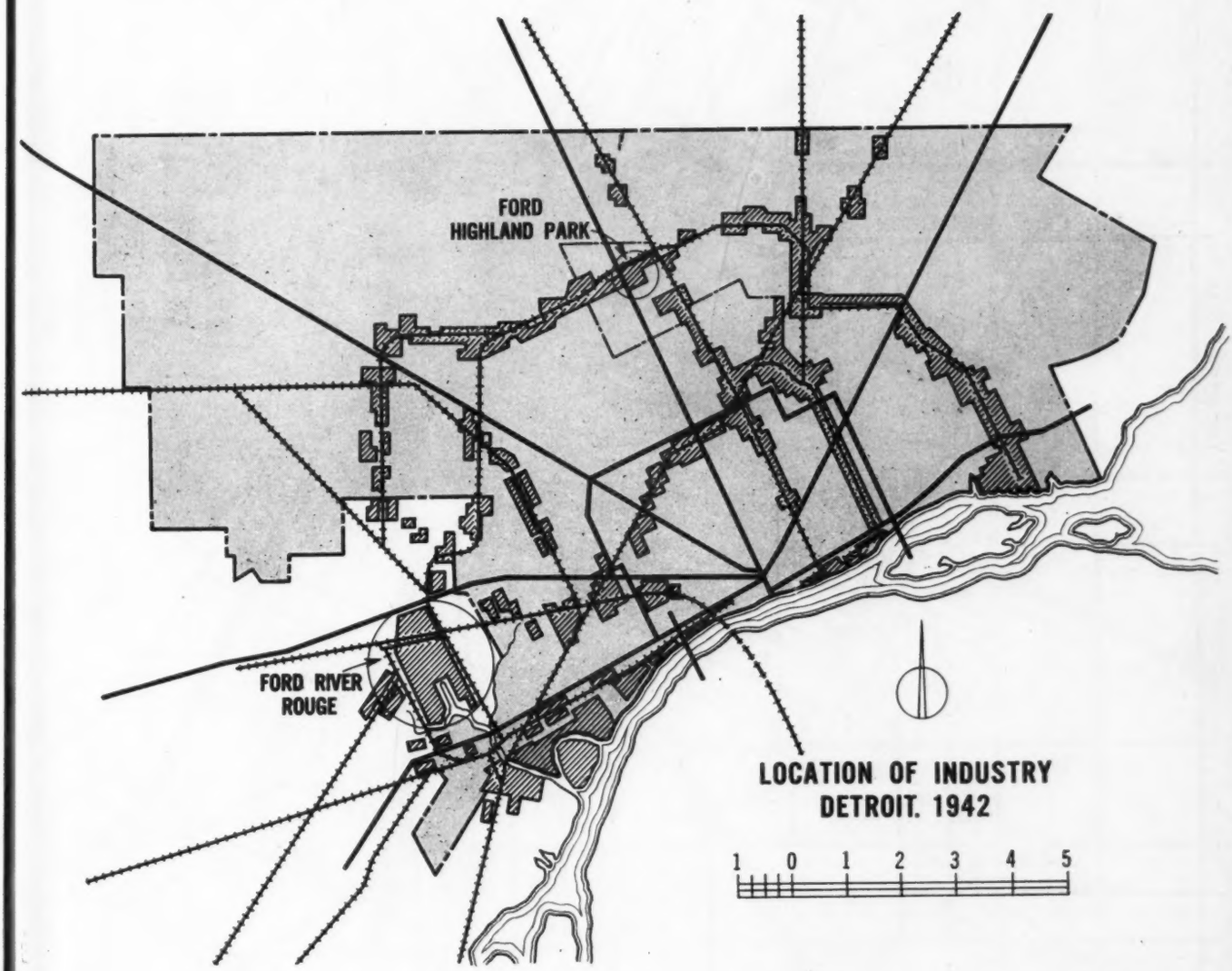
In the initial studies for Detroit these blighted areas were considered as potential "open areas"—the problem being to use these areas properly in the planning for Detroit. This raised the question as to *what* should be the proper purpose of the future planning of Detroit, and required that study be given to other phases of planning before making any decision with respect to the blighted areas and their use as "open areas."

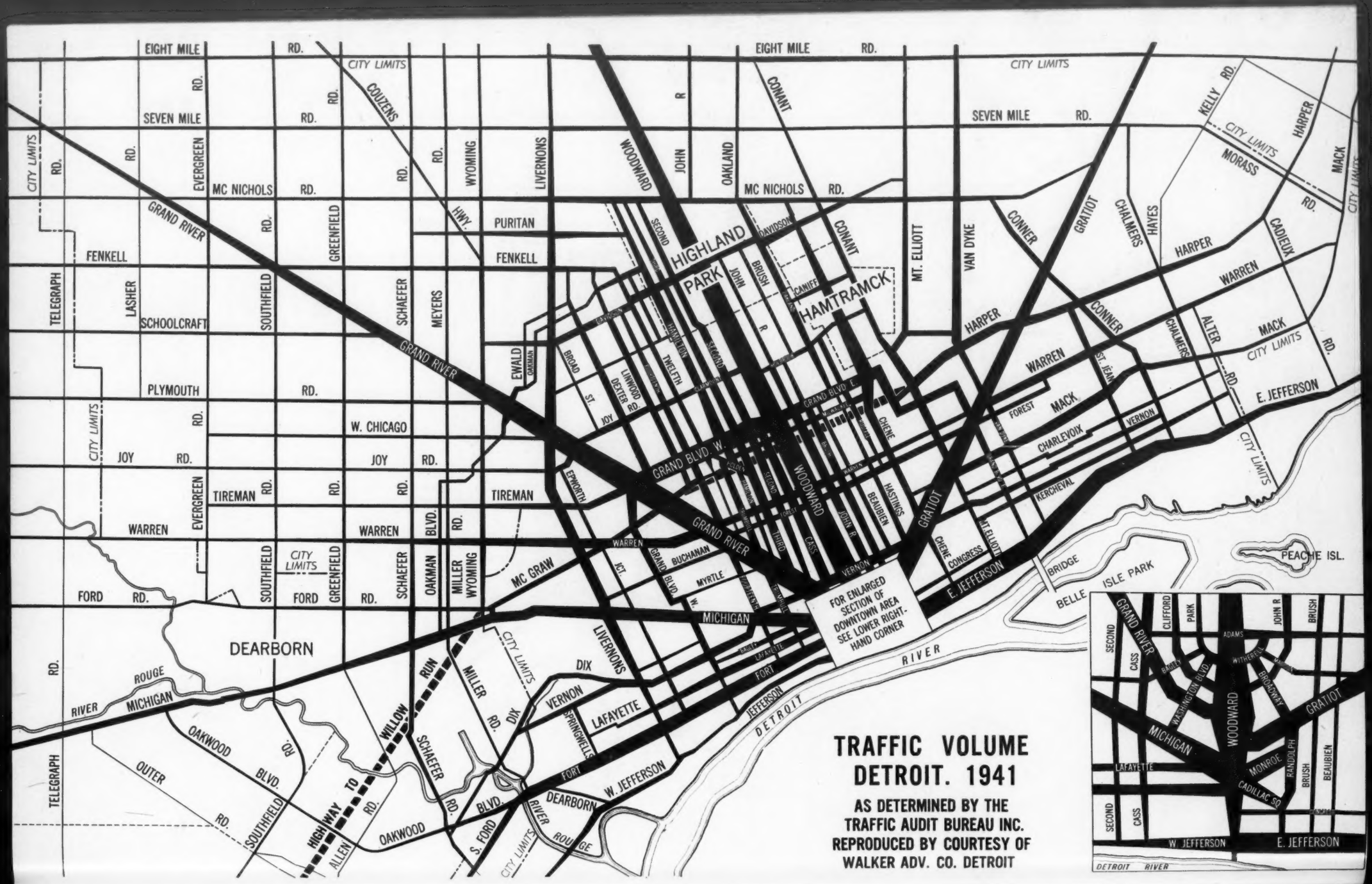
Design Research; The Location of Industry, 1942:

Detroit's position as the country's foremost mass-production center is well known. The location of industry, industrial land use or "industrial pattern," is important in the first stages of a planning study of Detroit, and is shown on opposite page.

With reference to this illustration, a comparison might be made between the area required for the Highland Park Plant and the River Rouge Plant of the Ford Motor Company. Such a comparison reflects the land area required for a multi-story manufacturing operation versus the land area required for single floor manufacturing space; the latter represents an improved, more efficient manufacturing operation, but requires far more land area. This sort of industrial planning, patterned after the Ford Rouge Plant, is now in general use and has been utilized by many of the other automobile manufacturers in the Detroit Area where land was available adjacent to their present plants or where a plant or a portion of a plant could be relocated to a more open area. The policy of the Reconstruction Finance Corporation and the Defense Plant Corporation seems, in many instances, to be in the general direction of approving the location of new plants in open areas, possibly with the view of obtaining a factor of dispersion as a defense against aerial attack.

The question is raised as to whether the older, multi-story, plants will tend to become obsolete in the near future and fall into the category of "industrial blight," and whether the newer, wartime, industrial plants will be continued because of their greater efficiency. If such changes were to occur, the "design pattern" of the city, and particularly the traffic volume pattern would be considerably altered. In this connection, a recent survey indicated that most of the manufacturers in the Detroit Area utilize trucks for the transportation of their products and receive a good part of their materials in the same way.


FORD
HIGHLAND PARK
FORD RIVER
ROUGE
LOCATION OF INDUSTRY
DETROIT. 1942
1 0 1 2 3 4 5


EIGHT MILE RD.
SEVEN MILE RD.
MC NICHOLS RD.
PLYMOUTH RD.
W. CHICAGO JOY RD.
JOY RD.
WARREN RD.
FORD RD.
CITY LIMITS
COUZENS
WOODWARD
JOHN R
OAKLAND
CONANT
LIVERNOIS
WYOMING
SCHAEFER
MEYERS
GREENFIELD
SOUTHFIELD
EVERGREEN
LASHER
TELEGRAPH
GRAND RIVER
HWY.
PURITAN
FENKELL
EWALD
OAKMAN
HIGHLAND PARK
HAMTRAMCK
CAMIEFF
DAVISON
BROAD
ST. JOY
LINWOOD
DEXTER RD.
TWELFTH
BRUSH
MT. ELLIOTT
VAN DYKE
CONNER
GRATIOT
CHALMERS
HAYES
HARPER
MORASS
KELLY RD.
CADIEUX
MACK
ALTER
ST. JEAN
FOREST
CHARLEVOIX
VERNON
KERCHEVAL
E. JEFFERSON
GRAND BLVD. W.
GRAND BLVD. E.
EPWORTH
CHENE
HASTINGS
BEAUBIEN
WARREN
BUCHANAN
MYRTLE
MC GRAW
MICHIGAN
DEARBORN
ROUGE RIVER
OAKWOOD BLVD.
OUTER RD.
HIGHWAY TO ALLEN RD.
WILLOW RUN
MILLER RD.
DIX
VERNON
SPRINGWELLS
LAFAYETTE
FORT
W. JEFFERSON
S. FORD BLVD.
DEARBORN
JEFFERSON
CONGRESS
BRIDGE
BELLE ISLE PARK
PEACHE ISL.
DETROIT RIVER
FOR ENLARGED SECTION OF DOWNTOWN AREA SEE LOWER RIGHT-HAND CORNER
TRAFFIC VOLUME
DETROIT. 1941
AS DETERMINED BY THE TRAFFIC AUDIT BUREAU INC.
REPRODUCED BY COURTESY OF WALKER ADV. CO. DETROIT
SECOND
CASS
CLIFFORD
PARK
ADAMS
JOHN R
BRUSH
WITHERELL
BROADWAY
WASHINGTON BLVD.
MONROE
RANDOLPH
BEAUBIEN
CADILLAC SQ.

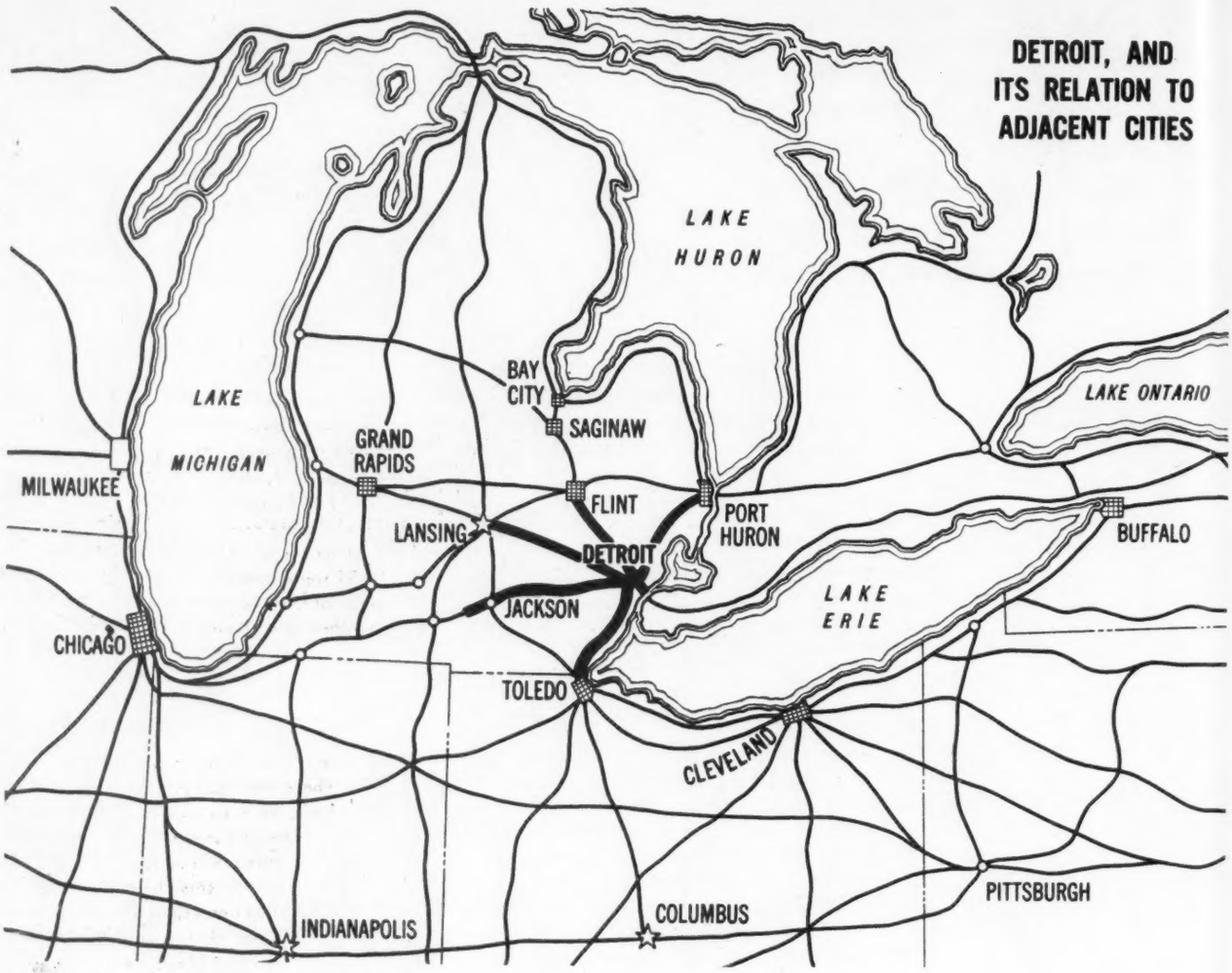
Design Research; Traffic Volume Pattern:

Traffic volume data is available for most cities; the research is usually done by the State Highway Departments or by the Traffic Audit Bureau, Incorporated. Other studies show origin and destination of traffic. In the case of Detroit, a very interesting survey was made by the Detroit Street Railways and tabulated by the State Highway Department to show the residence of workers employed in the Connor's Creek, Milwaukee Junction and River Rouge industrial areas. In the preliminary study of Detroit, the traffic volume diagram was considered as a "design pattern." In addition, traffic volume, i. e., transportation in the Detroit Area (inasmuch as Detroit has no rapid transit system), may be considered a result of and some indication as to present land use in Detroit, and the vicinity. Some study of the geography of the area was required to evaluate the use of certain streets and roads by traffic originating in other cities. Traffic volume in the City of Detroit is shown on opposite page.

Traffic volume diagrams are often given too much prominence in a study of city planning. Traffic congestion is a result of bad planning. Everyone knows where these points occur in his own city, knows the reasons for it, and in many cases, if asked, would have a suggestion to offer. In the preliminary study of Detroit, traffic volume was studied as a "design pattern." At first glance, the traffic on the main diagonal streets and Fort, Woodward and Jefferson, stands out as a large volume, particularly on Grand Rapids, Woodward, Gratiot and Jefferson; these traffic arteries together with Michigan and Fort extend well out of the city. The cross-town main traffic route is shown on Grand Boulevard; other cross-town routes are Warren and Forest, located south of Grand Boulevard, and Davison (under-pass) north of Grand Boulevard at Highland Park. With the exception of Warren, none of these routes provides for continuous travel east and west. For this reason traffic often finds it advantageous to use the diagonal streets to reach an east-west route; this often takes traffic well into the down-town area. The lack of direct east-west routes is due to the fact that the original roads were laid out in accordance with the idea of a concentrated city.

It is interesting to note the number of traffic arteries running north and south, parallel with Woodward, which was widened for almost its entire length some years ago. Notice too, that these north-south traffic routes, particularly south of Grand Boulevard, pass through the heart of the blighted areas within the Boulevards and notice that Warren and Forest east-west routes also pass through the same blighted areas. It is obvious that the constant shuttling of traffic, back and forth, day and night, is a contributing cause of the blight in this area.

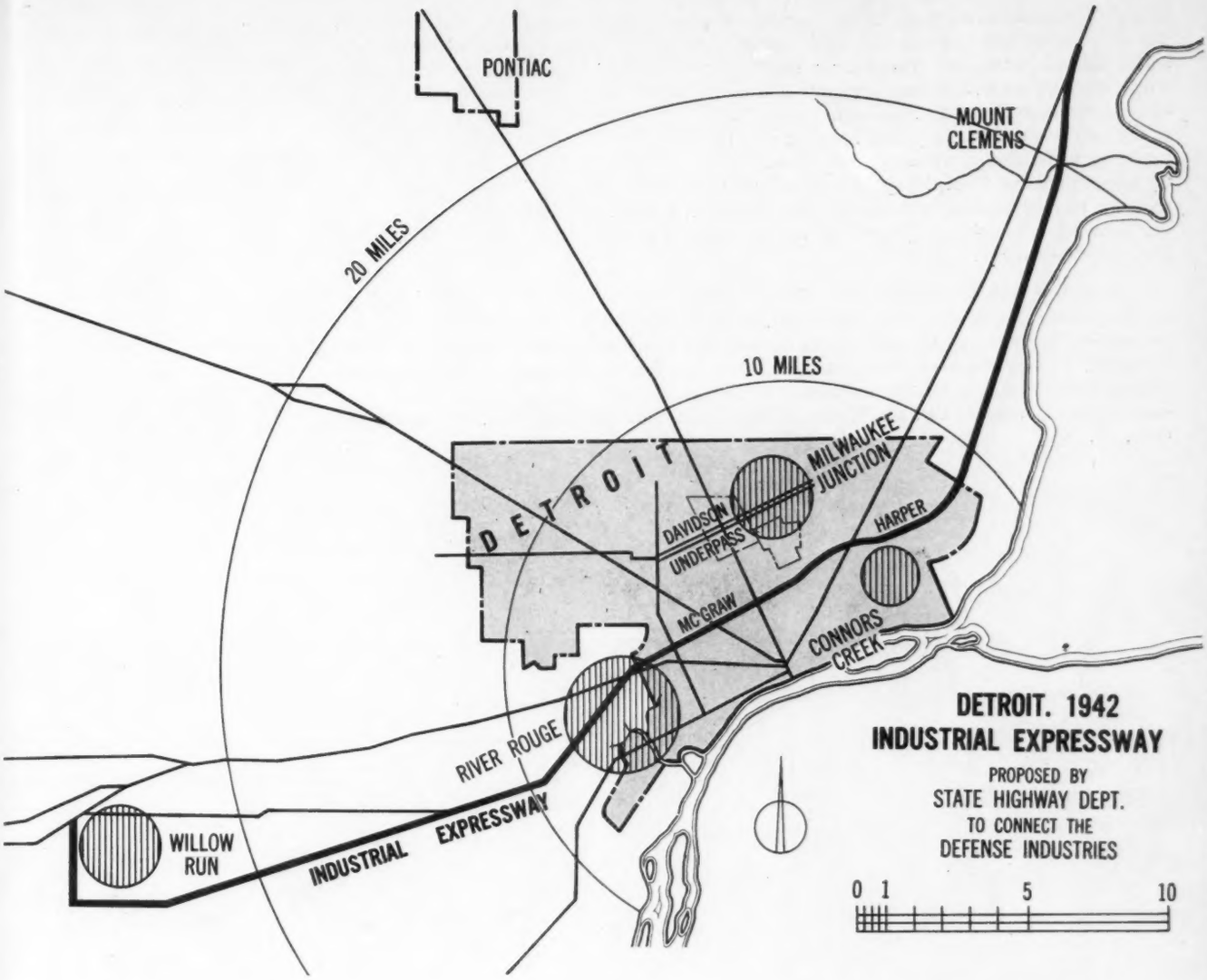
WALKER ADV. CO. DETROIT



Heavy Traffic on Roads to Adjacent Cities

With reference to Fort, Michigan, Grand River, Woodward, and Gratiot, it has been mentioned above that these traffic routes extend well out of the city. In this connection, the relation of Detroit to the adjacent cities of Toledo, Flint, etc., was given consideration, as well as the relation of Detroit to the main cross-country travel-routes. This is shown in the illustration above.

Traffic on the above-mentioned roads is partly due to the fact that they connect with adjacent cities, as follows: Fort to Toledo and the east-west travel-routes along the southern shore of Lake Erie; Michigan to Chicago and the West; Grand River to Lansing and Grand Rapids; Woodward to Flint, Saginaw and Bay City, etc.; and Gratiot to Port Huron and the Canadian travel-routes. This illustration also indicates the position of Detroit with respect to the other cities in the Middle West. It does not have the same through-traffic problems that are found in Cleveland, for example. Detroit's position is unique. It is rather off the beaten track. Detroit's position as the fourth city in the United States is not due to its geographical position or location but rather in spite of it.



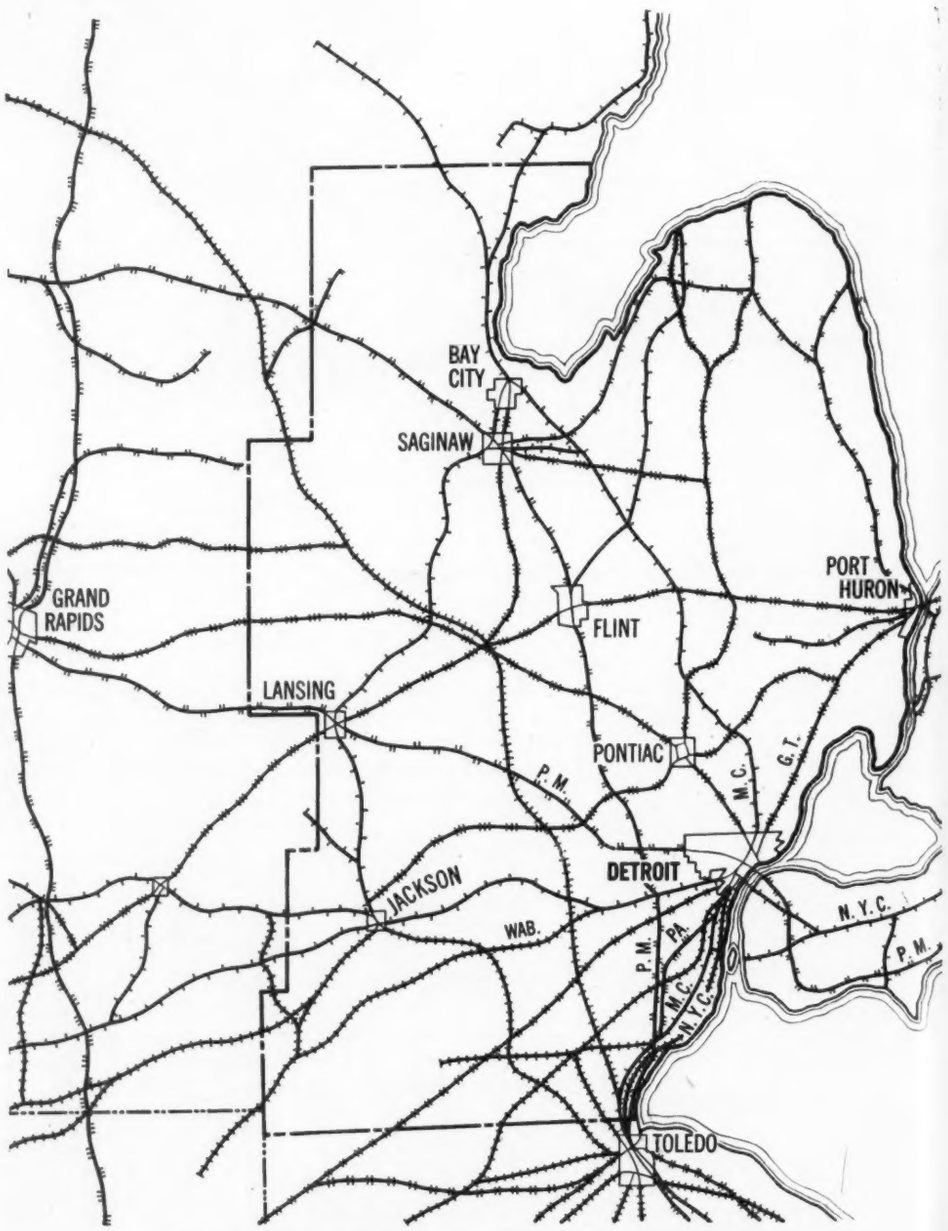
A Solution for the Cross-town Traffic Problem

Cross-town traffic is mentioned above and reference is made to the main cross-town traffic routes shown on page 58, "Traffic Volume, Detroit 1941." In the same illustration, the McGraw-Harper cross-town highway, now under consideration, is indicated by dotted lines showing the route through the mid-town area between Grand River and Grand Boulevard East, and the extension, running southwest from Dearborn from the intersection of Michigan and McGraw, to the Willow Run Industrial Area. The full extent of this cross-town expressway is shown above. It is about 50 miles long, extending from Willow Run to a point beyond Mount Clemens in the direction of Port Huron. Its purpose is to provide a through-way for traffic to the industrial areas; it would connect with or be adjacent to Willow Run, River Rouge, Milwaukee Junction and Connor's Creek Industrial Areas. The solution of cross-town traffic has, in this case, involved the design of a 50 mile expressway to serve the industrial region. Keep in mind the fact that manufacturing in the Detroit Area utilizes trucking for the delivery of its materials and the shipping of its finished products, and remember also the present tendency of industry to relocate in the open areas. This industrial expressway indicates that highway design in the Detroit Area has already taken on a "regional" complexion, and future highway design will probably be required to follow this regional trend.

Design Research; Suggestions for Revised Railroad Pattern in Detroit:

Under "Design Patterns," page 52, and under "Blighted Areas," page 55, it was mentioned that the railroad lines had added a fourth pattern to the street pattern of Detroit, and that this added railroad pattern had created many small segments in the "Area within the Boulevards," which segments are now almost completely filled with blighted areas. Assuming the relative size of these segments is partially responsible for the "blight" and that it was not due to the adjacency of the railroads and industry, and knowing that the industries in the Detroit area use motor-trucks by preference, it was considered advisable to make studies for the removal of some of the present railroad lines. Many of these railroad lines serve the older industries which have shown a marked tendency to re-locate in the more open areas. To make such suggestions, it was necessary to examine the present railroad lines serving Detroit and the Detroit Area. These lines are shown below.

This illustration indicates the relation of Detroit to the adjacent cities of Toledo, Lansing, Flint, etc., its position with respect to the main railroutes is indicated by its relation to Toledo which is on several of the east-west railroads. As in the case of the highway map, the position of Detroit is unique; it is off the beaten-track, etc., except perhaps for the Michigan Central Line from Buffalo across Canada to Detroit and thence to Chicago. Several railroads terminate their passenger service at Detroit; i. e., the Wabash, Pennsylvania, Baltimore and Ohio, Chesapeake and Ohio, etc.

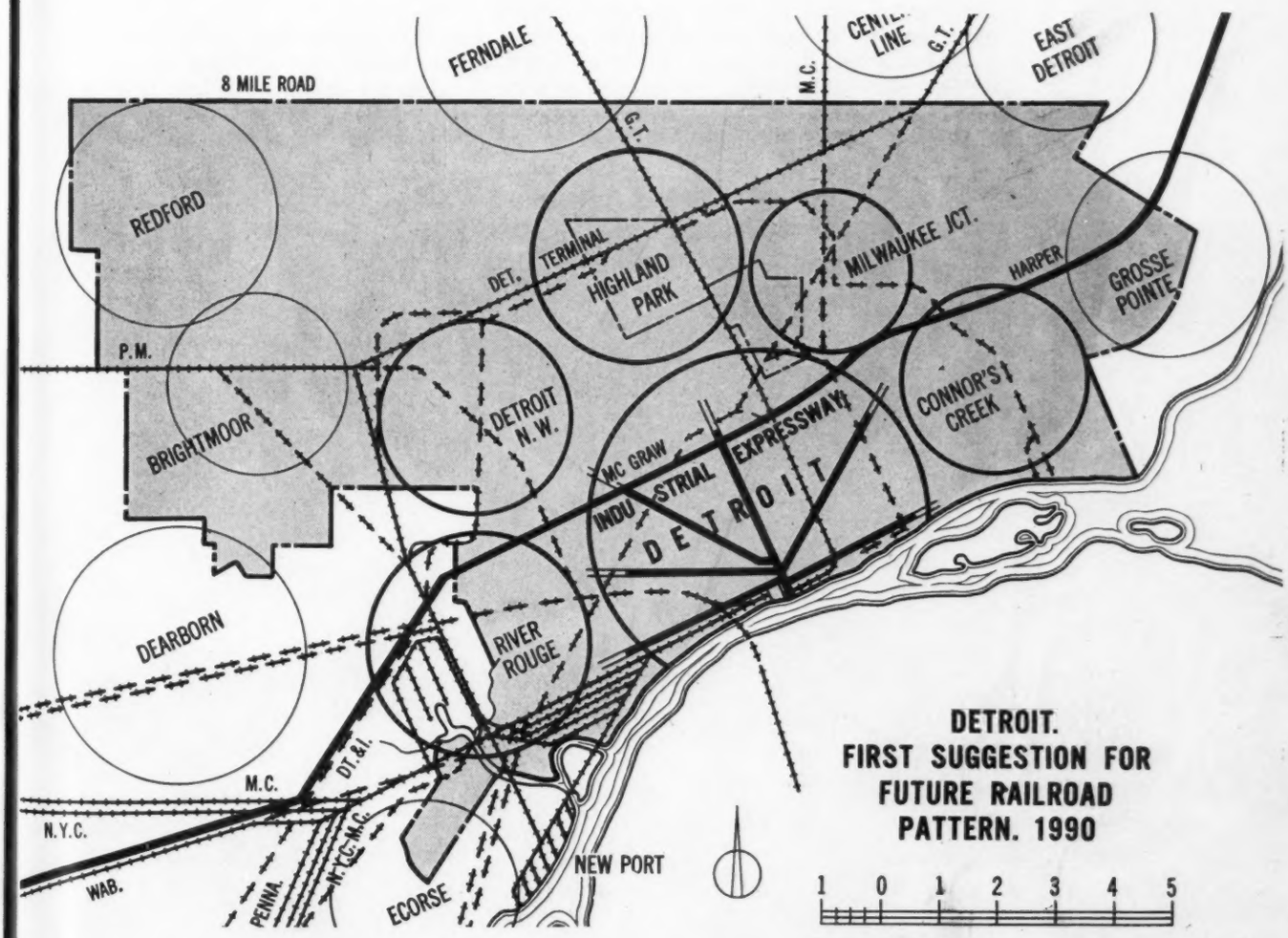


RAILROADS SERVING DETROIT AND THE AREA

Design Research; Suggestion for Revised Railroad Pattern in Detroit (cont.)

Earlier studies for the Detroit Waterfront Development resulted in a plan for a single passenger terminal that was to be located at the foot of Woodward Avenue. By comparison with Chicago, for example, the number of railroads having their passenger terminals or passenger facilities in Detroit is rather small. It is entirely feasible to have all the railroads use one station, and a plan for one passenger station is now under consideration by Detroit. In the preliminary study of Detroit it was decided to tentatively hold to the idea of a single station near the foot of Woodward. According to this plan the Grand Trunk Line, parallel to Woodward, could serve as a possible inter-urban or suburban service in the future, inasmuch as this line is located in an under-pass for a good distance, thus permitting the streets, east and west, to pass over the line. The Detroit Terminal Railroad was to be revised to provide for connections to all of the principal railroads and would be located approximately in the same location, passing through Highland Park, etc. These changes would permit many of the railroad lines south of the Detroit Terminal Railroad line to be eliminated. The industrial areas of River Rouge, Milwaukee Junction and Connor's Creek might be served by the McGraw-Harper Cross-town Expressway. These suggestions are shown below.

The railroad lines that have been eliminated in this scheme are shown by dotted lines. The main diagonal streets, and Fort, Jefferson and Woodward are shown as they would appear at the center of the City. By referring to the figure showing blighted areas on page 55 it can be seen that the number of small segments in the "Area within the Boulevards" would be considerably reduced thereby permitting better development of this area.



In the preliminary study of Detroit, several factors indicated that the scope of the study should be broadened and should include a study of the Detroit Region. For example, the study of the "Blighted Areas" raised the question as to the proper use of the blighted areas when they are considered as potentially "open areas" in the future planning of the city; the study of industry brings up the matter of the present tendency of Detroit's industry to seek new locations in more open areas; traffic volume studies involved an examination of Detroit's relation to the surrounding cities; etc.

At the time of making the preliminary study of Detroit, there was no regional planning body. In fact, the question might be asked as to what area might constitute the Detroit Area or Region.

The second stage of these planning studies is concerned with data research and design research leading to the establishment of the Detroit Area or Region, "The Detroit Sphere of Influence."

House for Mr. and Mrs. William Moorhouse, Lancaster, Pa.

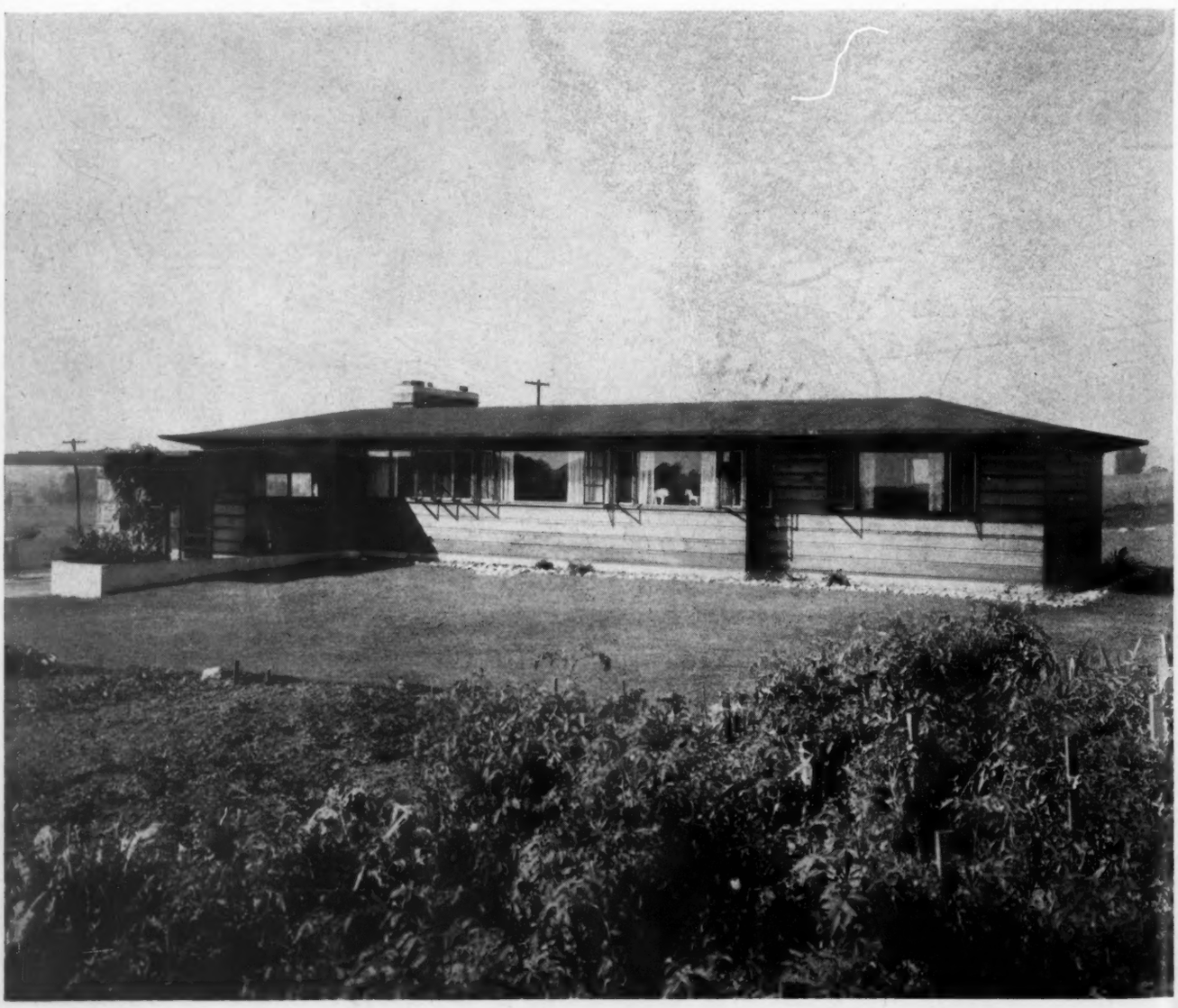
Philip F. Hallock, Architect, R. V. Hall, Associate

Although this house is located in the center of the Pennsylvania Dutch district and the owners had collected some antiques, as do most of these people, a traditional home would not fit their needs. The owners are young, and they wanted a young house with much glass area and with interrelationship and freedom in the living areas. More suitable furnishings, in keeping with the house, are contemplated in the future.

The house is located on a gentle slope overlooking the City of Lancaster some two miles distant to the south. The natural slope of the site was utilized in the design by dropping the floors in the utility, entry and living areas. This, together with the divan, bookshelves and table grouping in the living area conceal the dining table from view although the two areas are otherwise completely open. The dining area balcony effect also gains the view of the city sky line through the living area bay.

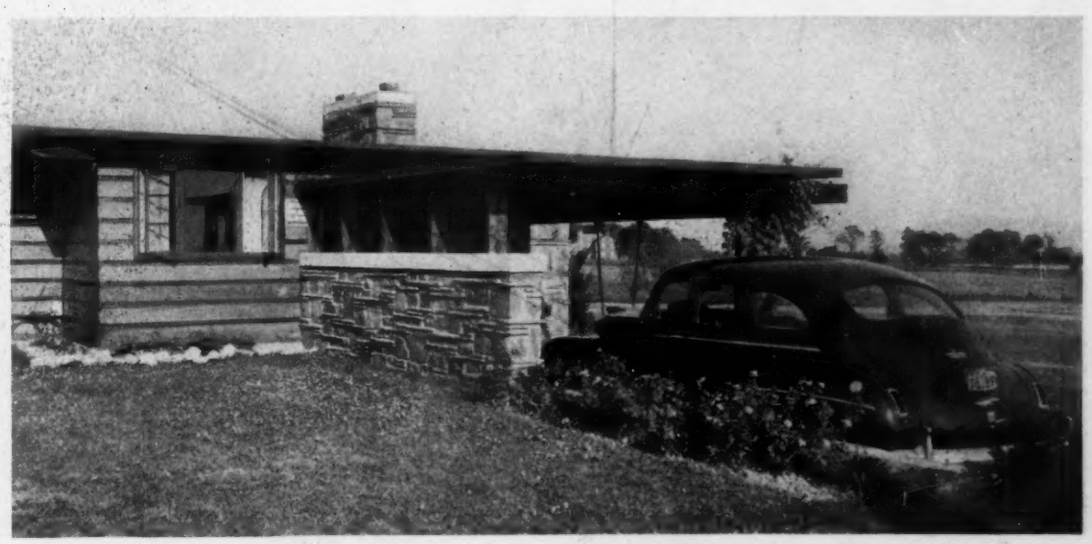
The design was based upon a 4-foot square module with all service areas located on the west, facing the highway. Further privacy was gained by using high windows in these areas. Sleeping and dining areas were opened to the east into the future garden. The stone corner in the living area was designed especially for the grand piano. The piano was shielded from sun, yet was lighted sufficiently from the high windows on the north wall.

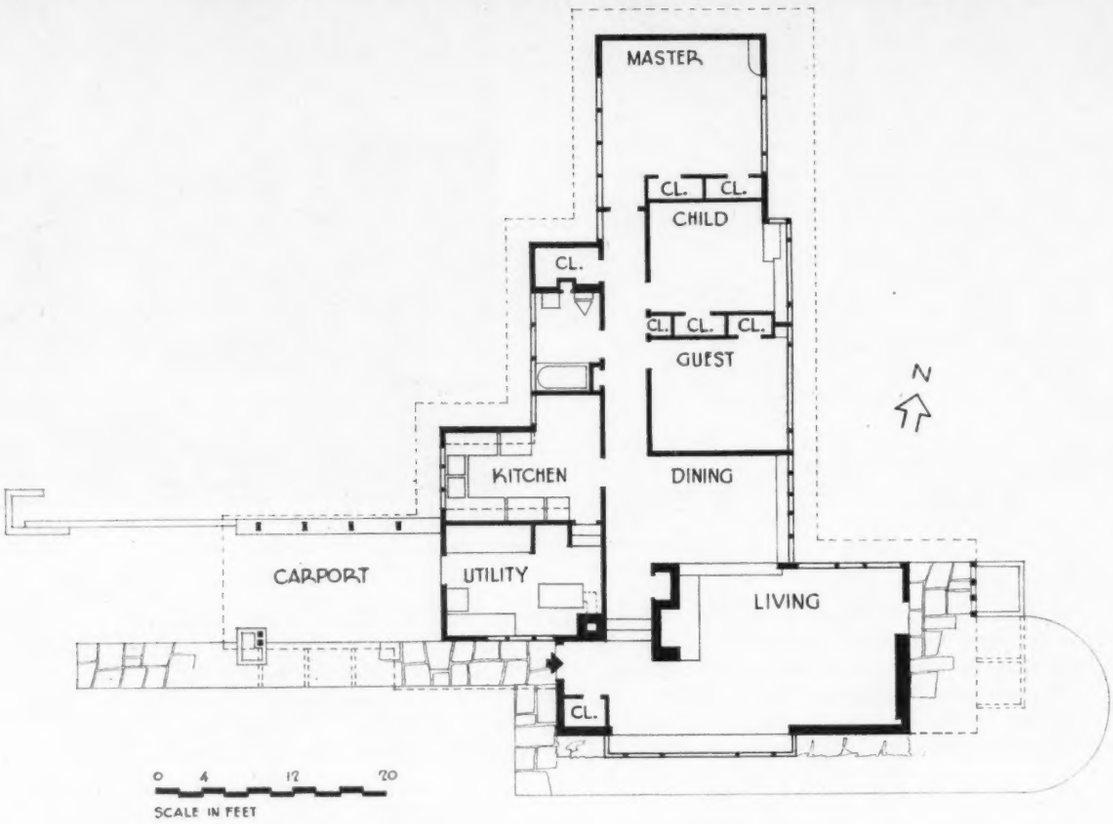
The house is heated by radiant floor panels. Since heating by radiation involves the control of the absorbed as well as the reflected heat by and from all surfaces within the building, it is more important to control the textures and finishes of interior floor, wall and ceiling materials than in a building heated by other methods. The low-temperature radiant floor panel coils of black wrought iron pipe (diameters ¾", 1" and 1½") were welded in place at the site on gravel fill. Balancing valves on each main supply in the utility room, and

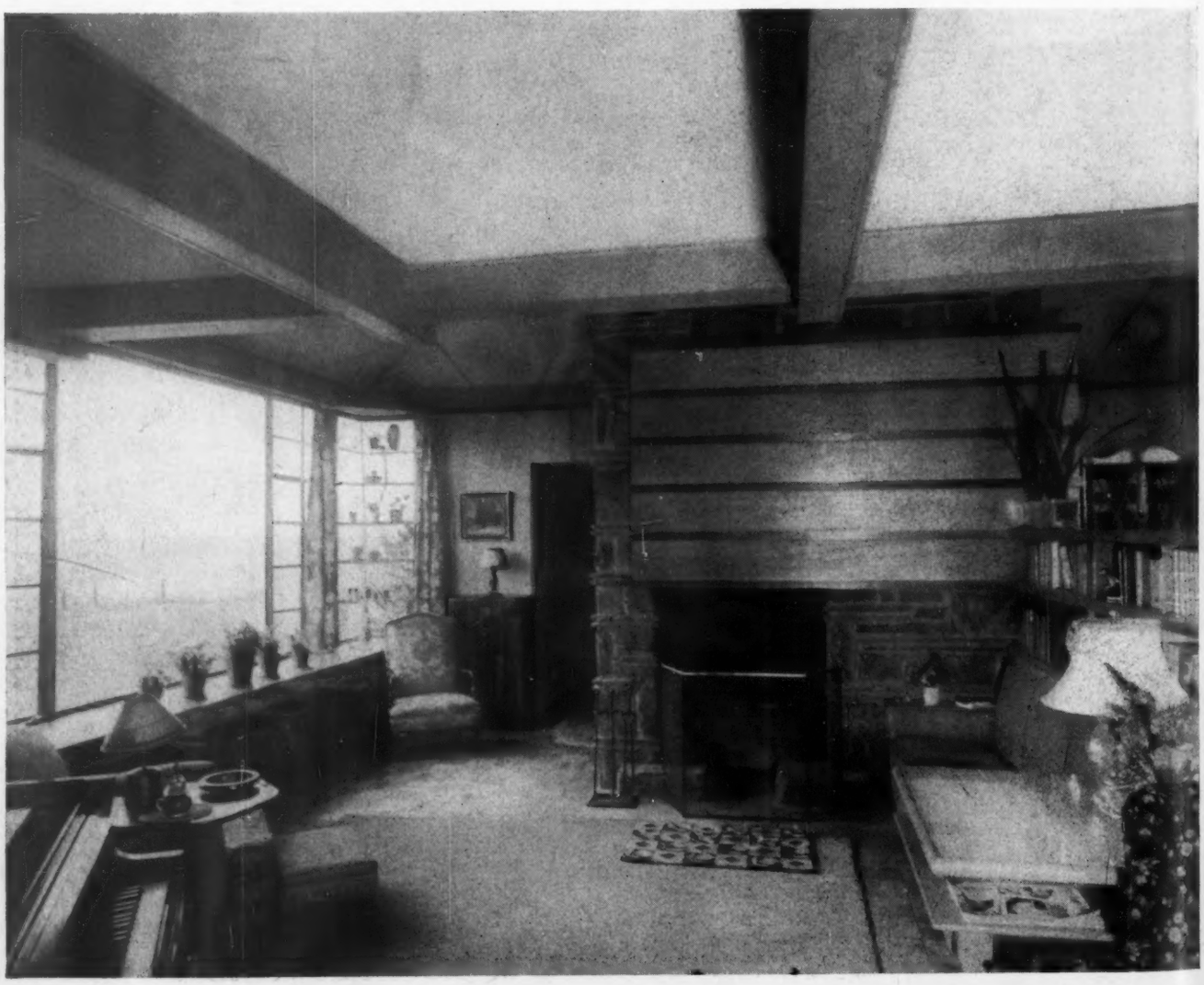


Photos by John A. Fritz

separate local control valves for each living area, were installed. After testing, concrete was placed over the entire floor area. The thermostat was connected with the water pump in order to maintain an even water temperature and to lower the load on the oil burner. A high limit control was placed in the concrete floor as a safety measure to protect the system in case the thermostat should cease to function. After the system had been in operation for about two months, in order to drive out excess moisture, the wood flooring




MASTER
CL.
CL.
CHILD
CL.
CL.
CL.
CL.
GUEST
N
KITCHEN
DINING
CARPORT
UTILITY
LIVING
CL.
0
4
12
20
SCALE IN FEET

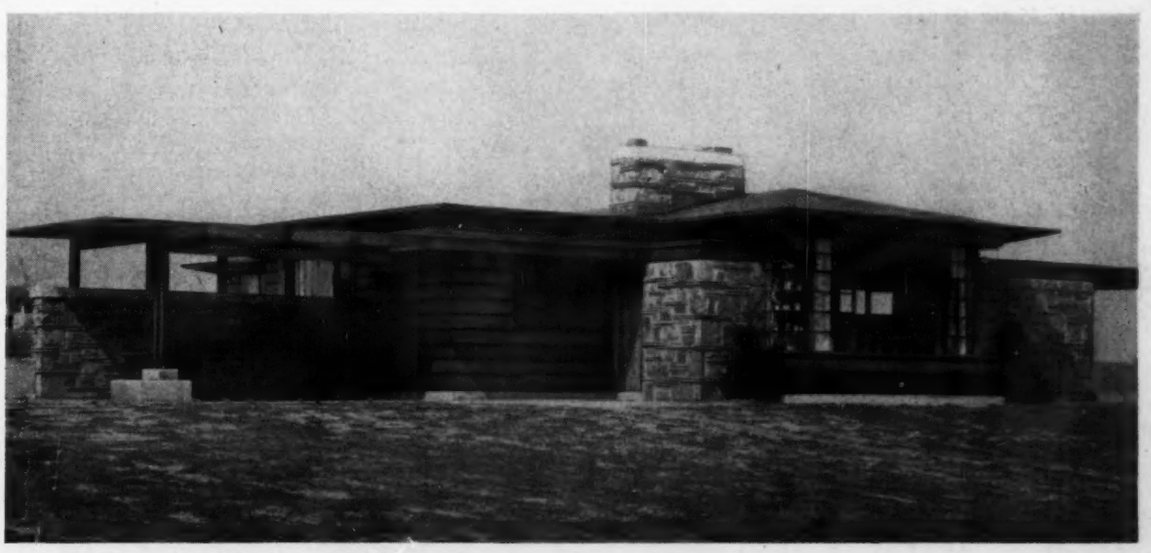


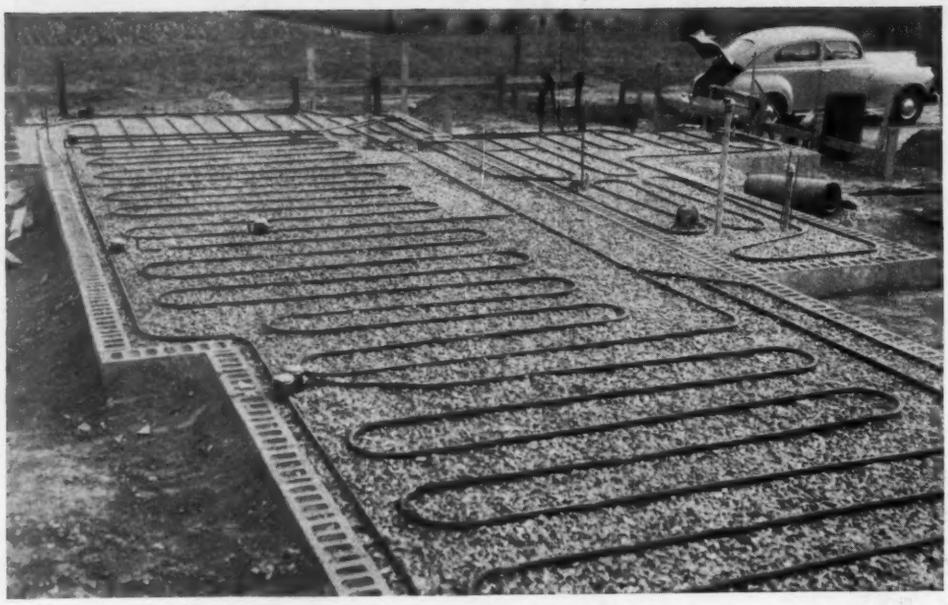
was applied with mastic. The wood acts as a distributor. Although the system was designed for a water temperature between 120°-140° F. and a maximum floor surface temperature of 85° F., the floor has not reached this temperature in the severest winter weather.

Some specific advantages of the radiant system of heating in this house, as reported by the owners, are:

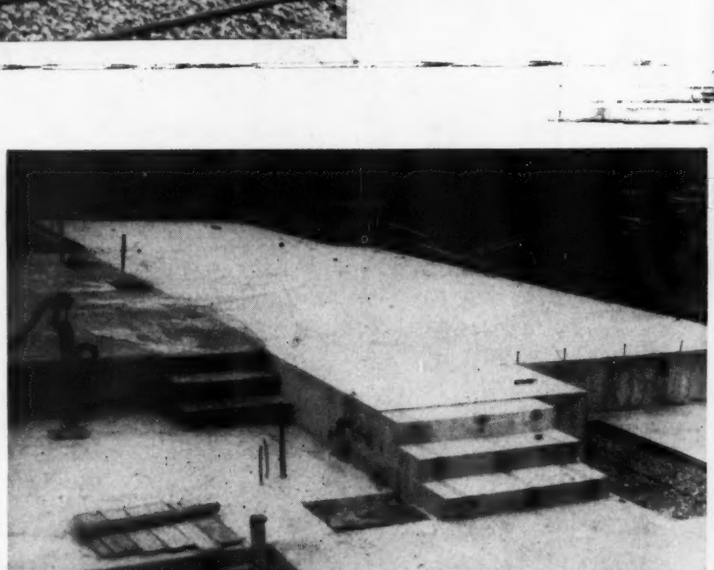
1. More body comfort and uniform air moisture content winter and summer.
2. Miraculously little dusting and cleaning required because the system of heating does not circulate dust.
3. Lower installation and operating costs.
4. Since the floor is not noticeably warm, there is no cold stratification and the air is not burned.
5. Although there is no apparent air movement, ventilation is automatic.
6. The house is cool in summer because the floor is in contact with the ground and absorbs heat. Circulating cold water in the coil as a cooling medium is not necessary.
7. Plant life thrives as it does in hot-houses.
8. Respiratory illness is reduced.

PHILIP F. HALLOCK



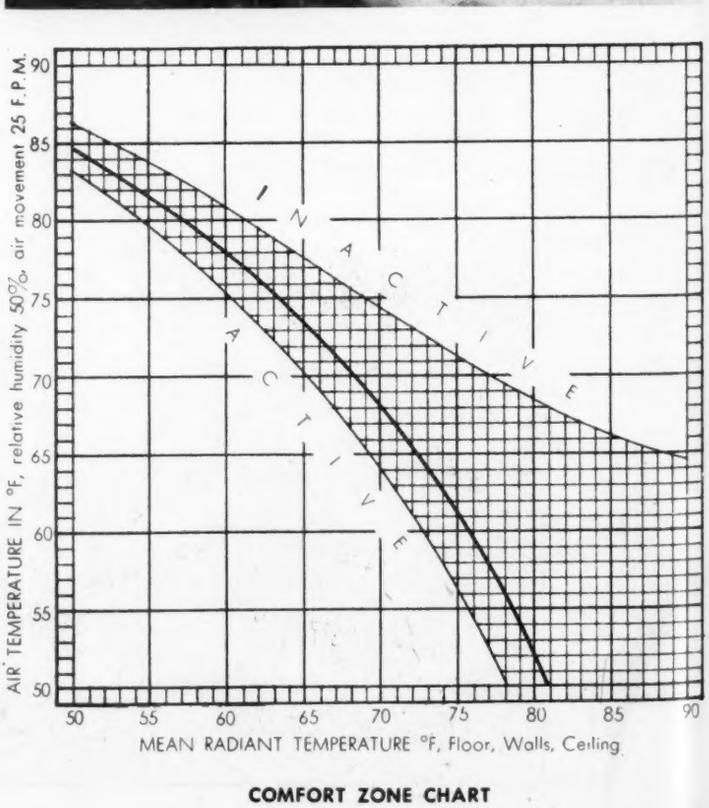


Above is the gravel fill, with radiant heating piping installed; at right, concrete floor poured. The house has concrete footings, concrete block foundations, and exterior walls which are partly Avondale sandstone and green flagstone, partly solid-core 2 x 6-inch T. & G pine surfaced with cypress and redwood, oiled. Aluminum foil insulation is used. Interior wall surfaces are ¼-inch fir plywood, specially stained and waxed; stone portions are exposed on the inside. Hipped roof is finished with mineral-surfaced roll roofing. Flat roof is built up. Flashings are 16-oz. copper. Floors are factory-finished red oak block set in mastic; linoleum is used in kitchen and bath, concrete in utility room.



Comfort Zone Chart

The hatched area indicates the approximate comfort zone. The heavy curve within this comfort zone indicates the ideal design relationship between air temperature and mean radiant temperature. The curve marked "inactive" represents the zone at which the body becomes too warm while at rest. The curve marked "active" represents the zone at which the body becomes too cold while exercising mildly, without additional clothing.



COMFORT ZONE CHART

Design and Practice of Radiant Heating

by Philip Hallock, Architect

Certain fundamentals determine the general characteristics of heating by radiation. Conditions for human comfort are determined by the amounts and proportions of body heat released by conduction, evaporation, respiration, convection, and radiation under varying heating conditions. By carefully scrutinizing these fundamentals, it is possible to explain some of the reasons for the gain in human comfort experienced by the owners of radiant-heated homes.

In our consideration of body heat losses indoors, the temperature range of all surfaces is so limited that conducted heat loss is negligible. Heat loss by evaporation and respiration increases as temperature and humidity decrease. Heating by radiation aids this loss by lowering the air temperature and increasing the comfort range of humidity percentage. Since evaporation and respiration are automatically aided by this system, and the greater amount of body heat (about 80 percent) is dissipated by convection and radiation, the latter become the main subjects of our concern.

More comfort is experienced in proportion to (1) the increase in body heat lost by convection to that lost by radiation; and conversely, in proportion to (2) the increase in the radiation heat source to the convection heat source. As these changes take place, room air temperature decreases and heat is more rapidly convected from the body to the air. In design, it is necessary to provide, as nearly as possible, a uniform heat source as well as a uniform heat loss from the body surface.

An example to illustrate lack of uniformity is the central wood stove of the past. Such a heat source is of small area and requires a high surface temperature for adequate space heating. Human comfort is lowered by this method of heating, although such a method is highly radiating, because the point source of heat causes unequal heating (greater difference between various surface temperatures within the room) with resulting strong convection currents. Human comfort was increased, over this system, by introducing other heat sources of larger surface areas, with reduced surface temperatures, involving the use of the indirect heat produced by radiators. Although such systems heat more uniformly, most of the heating effect is due to convection. The result is higher air temperature, lower humidity, and less convected and more radiated body heat loss, all of which bring about less comfort—as explained above. Since the surface temperatures of both heating sources are high, the air is burned and dust particles are precipitated on the walls and ceiling. Both systems set up pronounced convection currents. The introduction of air conditioning corrected the humidity percentage, but convection currents and high air temperatures remained in the usual systems of heating.

In radiant heating systems, these convection currents and air temperatures are reduced by increasing the surface area of the heating source and reducing the surface temperature proportionately. The amount of radiated heat is increased as heat by convection is decreased. The more the percentage is increased, the less necessary is air conditioning. The air moisture remains more constant and the humidity comfort range is increased, permitting a greater range of bodily activity within the room. The body is, therefore, comfortable within a larger range of air temperature and humidity percentages. Comfort has been reported with 80% humidity. Since air temperatures may be more varied for comfort, the lag in heating-up when the air temperature thermostat calls for heat is not so important. Radiant heat rays effect body comfort more quickly than air temperatures.

It is not practical to heat all the surfaces within a room because of the physical complications as well as the exhorbitant cost. It is practical, however, to accomplish a large measure of the increase in body comfort by using the floor, ceiling, one or more of the walls, or combinations of these as a radiant panel. While most of the experimental work in radiant heating in this country has been done on small houses, radiant heating is equally, if not more, adaptable to the largest buildings.

Worksheet and Calculations

(Worksheet shown on following page)

The following points outline the methods of calculating the radiant floor panel used by the author. Numbers from one to twelve on the work sheet are indices used for convenience in carrying computations forward. For ease of explanation, the numbers starting with twenty have been added to correspond with the following text:

A. 21: Figure the resistance of the various interior and exterior walls, roofs, and floors in the usual manner.

B. 22: The transmission coefficient of each surface is determined. The coefficient for single and double glass area may be revised from the usual practice, depending upon the average amount of surface covered by drapes. Calculate (23) the temperature difference between the lowest exterior winter temperature and the interior design temperature. The interior design temperature for each room is selected from the comfort zone on the chart. 24 is the product of the temperature difference, the transmission coefficient for infiltration and the required number of air changes per hour resulting in the BTU loss for one cubic foot of space.

C. 25-26: Calculate the BTU loss per foot of crack for windows and doors in a similar manner, substituting the air leakage in cubic feet per hour per lineal foot for the number of air changes in figuring cubic infiltration losses.

D. The product of the previously determined transmission coefficients and the temperature difference is entered under 27 for each item. The surface areas of each type of roof, wall, and floor construction are entered under 28 for the respective rooms. The BTU loss for each material is the product of 27 (the unit BTU loss) and 28 (the area) and is entered under 29 for each room.

A trial BTU loss for cubic infiltration (30) is compared with the sum of the BTU losses for the window infiltration (31), and the door infiltration (32) figured as described above. The largest BTU loss is used in the table, but in no case are both used. This is a safety measure used in modern houses to guard against errors due to unusually large glass areas and unusually high ceilings.

The above BTU losses are totaled for each room under 33. The floor BTU (34) and wall BTU (35), if required, are calculated to balance the BTU losses for each room in column 33. Provided that no wall coil be used or required in the room, the floor BTU required will be the same as 33. The floor area for each room is noted in each box 36. The floor BTU required (34) is divided by the floor area (36) to find the BTU heat release up from the floor panel (37) for each room.

The unit heat release of the floor down in BTU per sq. ft. per hour is calculated and entered in box 38; the product of each

RADIANT HEATING WORK SHEET

BUILDING _____ COM. NO. _____ DATE _____

B. T. U. LOSS DATA

	1 ROOF		2 ROOF		3 WALL		4 WALL		5 WALL		6 FLOOR	
	ITEM	RES	ITEM	RES	ITEM	RES	ITEM	RES	ITEM	RES	ITEM	RES
	TOT RES	21	TOT RES		TOT RES		TOT RES		TOT RES		TOT RES	
	TC=1 ORES	22	TC=1 ORES		TC=1 ORES		TC=1 ORES		TC=1 ORES		TC=1 ORES	

10. CUBIC INFILTRATION

ROOM	L. R.	D.R.	KIT.	UTIL.	GUEST	B.R. #1	B.R.2	
TEMP. DIFF.	23							
B.T.U.								
AIR CH.								
UNIT LOSS	24							

11. WINDOW INFILTRATION

T.D.	B.T.U.	A.L.	UNIT L.
			25

12. DOOR INFILTRATION

T.D.	B.T.U.	A.L.	UNIT L.
			26

B.T.U. LOSS PER ROOM

	ITEM	UNIT BTU LOSS	AL.R. BTUL	AD.R. BTUL	AKIT BTUL	AUTIL BTUL	ABR#1 BTUL	ABR#2 BTUL	ABR#3 BTUL	A BTUL	A BTUL
1	ROOF	27	28	29							
2	ROOF										
3	WALL										
4	WALL										
5	WALL										
6	FLOOR										
7											
8	DBL G										
9	SGL G										
10	INF C		30								
11	INF W		31								
12	INF D		32								
13											
	B.T.U. LOSS SUB TOTAL		33								

FL BTU REQD	34										
WALL BTU RQ	35										
BTU SQ ' UPRA	37										
FL BTU DOWN H.= 36	38	39									

BTU LOSS TOTAL	40										

BUILDING _____ COM. NO. _____ DATE _____

MEAN RADIANT TEMPERATURE

	ITEM	W.T.	AL.R. WTxA	AD.R. WTxA	AKIT WTxA	AUTIL WTxA	ABR#1 WTxA	ABR#2 WTxA	ABR#3 WTxA	A WTxA	A WTxA
1	ROOF	41	42	43							
2	ROOF										
3	WALL										
4	WALL										
5	WALL										
6											
7											
8	DBL G										
9	SGL G										
	SUB TOTAL		44	45							
	MRT UNHEAT		46								
	FLOOR TEMP		47								
	FLOOR AXT	48	49								
	TOTAL AXT		50	51							
	M.R.T.		52								

PIPE INSTALLED 53

LOCATION	L.R. SQ.FT.	D.R. SQ.FT.	KIT. SQ.FT.	UTIL. SQ.FT.	BR.#1 SQ.FT.	BR.#2 SQ.FT.	BR.#3 SQ.FT.	SQ.FT.	SQ.FT.
FLOOR									
WALL									
GAL. PER HR.									

TOTAL GAL. PER HOUR = _____
HEAD = _____
PUMP SIZE = _____
TOTAL B.T.U. FOR SYSTEM = _____
BOILER CAPACITY = _____

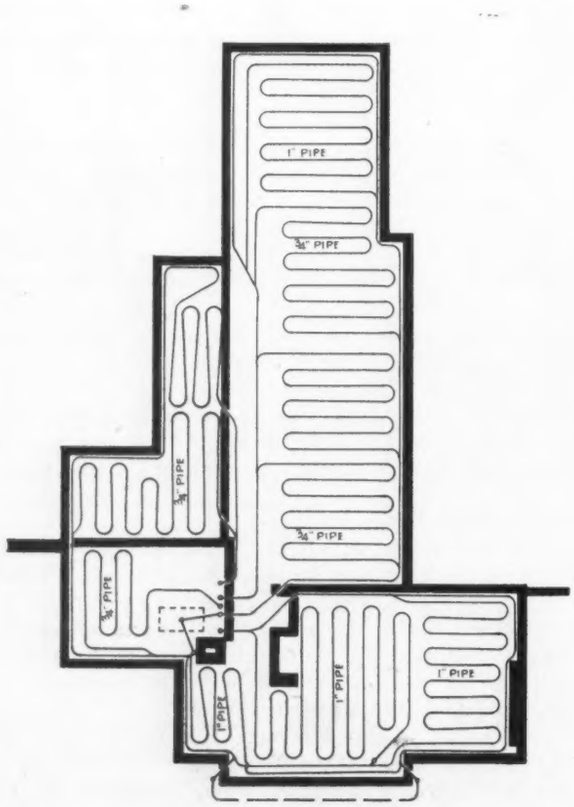
WATER TEMPERATURE = _____
AVERAGE TEMP. DROP = _____
LONGEST WATER TRAVEL = _____
SIZE MAIN #1 = _____
SIZE MAIN #2 = _____
SIZE MAIN #3 = _____

ESTIMATED INSTALLATION COST _____ ESTIMATED OPERATION COST _____

ACTUAL COSTS

INSTALLATION COST		OPERATION COST	
TOTAL COST		COST PER YEAR	
COST PER B.T.U.		COST PER B.T.U.	
COST PER SQ. FT. FL. AREA		COST PER SQ.FT.AREA/YEAR	

Above are work sheets developed by Philip Hallock for use as described in his article. Below is the radiant panel layout for the Moorhouse residence. Main supply lines run along outside walls to offset cold down drafts.



Above, welding the wrought iron floor coil. This was fabricated on the job by the heating contractor. The coil is set dead level on gravel fill. After testing, this was covered with the concrete subfloor. Several months were allowed for the floor to dry out before the prefinished wood surfacing was applied.

floor area and the unit BTU heat release down is entered for each room under 39. The total BTU loss (40) is the sum of the BTU losses by unheated areas (33) and the floor BTU loss down (39).

E. The next step is the mean radiant temperature calculations for each room. Item 41 is the temperature difference between the interior and exterior of the walls, floor, and ceiling less the temperature difference of the room air to the inside wall temperature, 42, as before, is the area of the surface. 43 is the product of temperature difference (41) and the area (42). Room columns 42 and 43 are added and entered under 44 and 45 respectively. The mean radiant temperature of the above unheated surfaces (46) is obtained by dividing 45 by 44. The floor surface temperature (47) is calculated from the mean radiant temperature of the unheated surfaces, the assumed air temperature and the floor BTU release previously calculated; should this temperature be above 85° F. an additional area of radiant panel must be used in order to prevent noticeable hot spots. The surface temperature of the floor is then refigured with the increased area. This floor temperature (47) is multiplied by the floor area (48) to obtain 49. 50 is the sum of 48 (the heated floor area) and 44 (the unheated surfaces in each room). 51 is the sum of 45 and 49.

The mean radiant temperature of heated and unheated surfaces in each room (52) is obtained by dividing 51 by 50. Check the comfort zone chart to determine if this mean radiant temperature falls within the comfort zone at the assumed air temperature. If this is not the case, the calculations must be repeated with a different assumed air temperature, or an increased or decreased floor release.

F. The final step in the panel design is the calculation of the size, spacing, and length of pipe required to produce the total BTU required for each room (53). The additional information, namely, gallons of water per hour, water head, pump size, boiler capacity, water temperature, water temperature drop, and the sizing of the mains are calculated in the usual method. If the heat release up from the floor is more than 85° F., it may be necessary to add more insulation in the ceiling and walls, increase the size of the heating panel, or change the surface material on the floor. If the floor surface is wood, larger pipe sizes may be used without causing hot spots because of the low conductivity.

Additional radiant panels are seldom required when the floor is used as the heat source if the windows are double glazed. Although there is a high percentage of glass area in the Moorhouse project, only one small wall coil was used. This coil was located under the large living room window which is not double glazed. If additional humidification and fresh air are required (as in public buildings) they are provided in the conventional manner.

Construction

The above method of calculation has been described for a heating medium of piped hot water in floor coils. Other mediums which have been used are piped steam, hot air, and electricity. Steam and hot water are used more frequently in this country. Gas, oil, coal hand fired, and coal stoker boilers have been used successfully for this type of heating.

In laying out the system, the main supply lines are usually valved separately at the boiler for balancing the system and draining, if the house is to be vacant for a protracted length of time in cold weather. The main supply lines are run around the outside walls to offset the cold down draft and thus be in the proper location for branches to additional walls or window coils as required. A small coil is often concealed under larger single glazed windows by a case. This coil is valved in order to prevent short circuiting the room coil. The heat from such a coil balances the window infiltration and removes condensation in severe weather, by raising a higher temperature curtain in front of the glass resulting in equal heat loss by the body to all surfaces. Discomfort may be caused by a surface at an appreciably lower radiant temperature because the surface of the body turned toward it loses heat at a more rapid rate than other body surface areas. Each room coil is valved at the junction with the main supply or the main return which continues back to the boiler from the center of the house floor area. The whole system may be laid level or pitched slightly toward the boiler for ease in draining. Air vents are located at all high points. All local valves should be drilled with a small diameter hole to prevent complete stoppage of flow when the valve is closed, and thus prevent a possible freezing in cold weather. Before covering, the coil system is tested with a pressure of 200-300 lbs. The coils are usually covered with concrete to aid conductivity in a one-story structure. Any wearing surface may be installed over the slab. Coils for a two story structure may be installed in a similar manner. If the construction is wood or metal, the coils are placed between the joists. Conductivity to the radiating surface from the coils is maintained by placing the plaster ceiling or the floor construction in contact with the coils. If, in a house of wood construction, a room has auxiliary ceiling or wall coils, it is not necessary to place the floor coils in contact with the floor construction. In this case the higher resistance of the air space allows sufficient heat passage to the floor surface.

Three types of automatic controls may be used. An exterior temperature control may be used to anticipate a lower mean radiant temperature. Wall surface temperature or air temperature thermostats may be used in the usual manner. Since radiant heating permits a greater range of air temperature with comfort, the author prefers the more economical air temperature thermostat for residences. Because of the larger permissible range in air temperature, with radiant heat, the usual 2° F. thermostat setting calls for heat before the body feels cool and the time lag of the floor system loses its significance.

The thermostat is connected to operate the circulating pump. This not only reduces fuel consumption, but permits easier control of the domestic hot water temperature when the boiler coil is used. A modulating system is recommended for large buildings. A three-way valve connected with the boiler supply, coil supply, and coil return by-pass is used in this type of hook-up, and is controlled by an exterior temperature bulb; the circulating pump remains in continuous operation. This method provides a more even water temperature.

The Advantages of the System Described Are:

1. *There is more freedom of planning in room design.*
2. *The floor panel is finished with the floor construction, and delays in later construction are prevented.*
3. *The floor, being in contact with the earth, is cool in summer and warm in winter.*
4. *The air is purer because the system does not cause the circulation of dust.*
5. *Convection currents are substantially reduced.*
6. *Less house cleaning is required.*
7. *Installation and operation costs are lower.*
8. *Air temperatures and heating medium temperatures are lower.*
9. *High rooms are heated as easily as low rooms.*
10. *The humidity remains more constant.*

Architects at War:

Contributions of the Profession to the Prosecution of the War

The architects of America have demonstrated during the past two years that they have what it takes to make a truly important contribution to the war effort. There need no longer be any feeling of inferiority based on the sort of talk that was prevalent during the early stages of the war when architects were so often told that they could not fit in advantageously and that engineers only were wanted.

Last summer we asked the Secretaries of all AIA Chapters and State Associations to furnish us with as much information as was available concerning their members in military service, those working on war contracts, those occupying positions in government bureaus, and those working for war industry. While the replies vary greatly in terms of the completeness of the information made available, we have been able to put together from them a fairly good picture of what has been taking place throughout the country.

Reports were made by the Secretaries of 39 organizations, 33 of which were Chapters of the Institute.* The total membership represented was about 2,500. 508 members of these groups were listed as being in the uniformed services, representing 20% of the membership. If we apply this percentage figure to the entire national membership of the AIA we should arrive at a figure of about 780 Institute members now in uniform, which may or may not closely approximate the actual total. It is safe to say that there must be, in addition, many non Institute members and hundreds of draftsmen and junior architects. It is probable that between ten and twenty percent of the entire profession is in uniform today.

We are listing hereafter the names of 718 architectural men who are known to us to be in the service. We know that this list is sadly incomplete and that there have been many promotions since the information was reported to us. We will appreciate hearing from anyone who can add to this list or furnish corrections which we will gladly publish later.

In the reports made by the various Secretaries, there was only a partial listing of the war projects for which architects have been responsible either completely or in close association with architect-engineer partnerships. In many of the states reporting, the Secretaries did not have the information at hand and those from other states were doubtful about whether the war-time censorship would permit them to give out the information. We have, however, definite word of architects participating on projects totaling over $1,200,000,000. Knowing the incompleteness of the list, we have no hesitation in stating that this figure should be multiplied several times over to arrive at a fair estimate of the volume of war work that has been handled by the profession. For example, the figures do not include the State of Michigan, from which no report was available, and everyone knows that such offices as those of Albert Kahn, Smith, Hinchman & Grylls, Giffels and Vallet, etc. have accounted for astronomical totals all by themselves. $700,000,000 worth of projects were headed by architects in the New York metropolitan area and over $200,000,000 worth were done by architects in the State of Texas. Even though part of these totals represent money spent for the engineering phases of the jobs, the architects share equally in the responsibility for their design and execution.

The War Department does not permit the publication of a breakdown showing the number of projects in each category or the total dollar volume in each class. Even if it did, our figures are nowhere near complete so that the facts we might print would be only indicative. The principal headings include Housing and Community Buildings; Industrial Buildings; Training Schools and Establishments for Army, Navy, and Airforce; Airfields; Shipyards and Drydocks; Camps for various branches of the service, with Dormitories and Barracks; Internment Camps; Hospitals; and USO Clubs. A number of other types of lesser importance have also been designed by architects.

When and if the final figures are compiled by the government there will remain no doubt that the architects, acting in their professional capacity, have been of tremendous service in building up our war establishments, an essential part of winning the war.

We have no figures showing exactly how many of the profession participated either as principals or as designers, draftsmen, specification writers, etc., in carrying out these projects, but we know that the numbers are substantial. As for the men who did not become involved in this sort of activity, we have records of hundreds who have worked in various capacities in shipyards, aircraft and other munition plants, or who have been employed by purely engineering concerns, doing mechanical drafting, piping layouts, estimating, inspection, etc. Many hundreds of men have worked on camouflage projects and other hundreds have been employed by the various government agencies dealing with housing and war construction.

On the evidence in hand, incomplete as it is, we can confidently say that the great majority of the men of the architectural profession have served effectively in some way to help the nation along the road to victory, and that even those who could not for one reason or another participate have been doing important things in connection with getting ready for the postwar period. We are proud of the profession's performance and the profession may well be proud of itself.

Architectural Men In Uniform

Abbreviation USA indicates United States Army; USN—U. S. Navy; USCG—U. S. Coast Guard; USMC—U. S. Marine Corps; USMM—U. S. Merchant Marine; USAR—U. S. Army Reserve; USNR—U. S. Naval Reserve; USCGR—U. S. Coast Guard Reserve; USMCR—U. S. Marine Corps Reserve; USAAC—U. S. Army Air Corps; USASC—U. S. Army Specialist Corps; C.E.—Corps of Engineers; j.g.—junior grade; s.g.—senior grade.

Alabama

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F. J. DREYFOUS, Major (USA), (C.E.)
JOHN R. FARRIS, Capt. (USA)

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* *Reports, more or less complete, were furnished by the following AIA Chapters: Alabama; Boston; Brooklyn; Buffalo, Central Valley (Cal.); Southern California; Santa Barbara; Florida (North, Central, and South); Georgia; Central Illinois; Iowa; Kentucky; Maine; Baltimore; Detroit; Mississippi; New Orleans; Dayton; Rhode Island; St. Louis; Tennessee; Texas (South, Central, and North); Toledo; Utah; Virginia; Washington (D.C.); Washington State; West Virginia and New York. State Associations which reported include: Pennsylvania, Alabama, Virginia, Texas, and California (Northern and Southern Sections).*

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Illinois

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MATT SUMNER (USNR)
LAMBERT J. SOUCEK, JR. (USMC)

Indiana

PAUL F. JERNEGAN, Sgt., (USA)
LOWELL G. SCHWEICKART, Major (USA)
LADDIE F. CERVENKA (USA)

Iowa

C. F. Bowers, Lt. (USAAC)
Henry L. Fisk, Lt. (USNR)
Donald W. Hutton, Lt. (USA)
Leland McBroom, Major (USA)
Russell J. Prescott, Lt. (USNR)

Kansas

Henry George Hughes, Lt. (USA)

Kentucky

Stanley Arthur, Lt. (USA) (C.E.)
Charles N. Bayless, Lt. (USA), (C.E.)
William B. Brock, Lt. (USA)
Howard Churchill, Capt. (USA), (C.E.)
Henry Etter, Ensign (USN)
Stratton O. Hammon, Major (USA)
H. M. King, Lt. (USNR)
T. D. Luckett, Lt. (USA), (Quartermaster Corp)
Earle Otis, Major (USA)
Michael R. Prusack (USA)

Louisiana

William E. Bergman
Julius Dreyfous
Edward Louis Ehrensing, Jr. (USCG)
Douglass V. Freret
David Geier
L. D. Geiger, Lt. (USA)
Eugene J. Gilbert
James H. Herbert (USN)
Gerhardt Kramer
Frank Monroe Labouisse
Theodore L. Perrier, Capt. (USA)
Italo Ricciuti
Solis Seiferth
Edward B. Silverstein
Marshall H. Walker, Lt. (j.g.) (USNR)
John F. Wilson
Sam Wilson, Jr.
Albert J. Wolf

Maine

Philip M. Coffin, Jr. (USA)
John Pickering Thomas, Lt. Com. (USN) (Intelligence)

Maryland

Vincent J. Miller, Lt. (USNR)
Cary D. Tucker (USNR)

Massachusetts

John Radford Abbott, Major (USAAC)
John W. Ames, Jr., Major (USAAC), (Intelligence)
Warren H. Ashley, Lt. (j.g.) (USNR)
Merton S. Barrows, CPO, (USN), (Seabees)
Waldron Phoenix Belknap, Jr., Lt. (USAAC)
Roy S. Bent (USN)
A. W. K. Billings, Jr., Lt. Col. (USA)
C. E. Born, *Capt.* (USAAC), (Engineer)
George W. W. Brewster, Lt. (j.g.) (USN)
David M. Brown (Red Cross Rehabilitation Service)
Charles J. Buckley, Lt. (j.g.) (USNR)
Cornelius W. Buckley, Lt. (USNR)
Ray C. Bump, Jr. (USA)
Samuel V. Chamberlain, Capt. (USAAC)
John M. Chandler (USA)
Josiah H. Child, Capt. (USAAC), (Intelligence)
Edward A. Clancy
Herbert H. Coe, Lt. (USN)
Preston M. Cole, Lt. (USMCR)
Robert C. Dean, Lt. Col. (USA)
Joseph Di Stefano, Pvt. (USAAC), (Technical Training Command)
Godfrey K. Doner, Lt. (USNR)
Willard Emery, Lt. (USNR)
Conover Fitch, Jr., Lt. (USNR), (Civil Engineering Corps)
Merrill M. Green
Roger Griswold, Major (USAAC)
S. Tyson Haldeman, Lt. (USA), (C.E.)
Frank Trevor Hogg, Lt. Comdr. (USNR)
F. R. Jackson, Lt. Comdr. (USN)
Ralph T. C. Jackson, Major (USA), (C.E.)
James Lawrence, Jr., Capt. (USAAC)
John T. Lee, Major (USA)
Howard L. Lewis (USA)
Robert S. Lundberg, Lt. (j.g.), (USN)
Edwin R. McCarthy, Pfc. (USA)
Vincent N. Merrill (USA)
Sherman Morses, Lt. (USNR)
Frank S. Owen, Major (USAAC)
Philip Dana Orcutt, Capt. (USAAC)
Franklin P. Parker (USA)
Kenneth I. Parker (USA)
John W. Peirce, Ensign (USN)
Constantin A. Pertzoff (USA)
Edward A. Poszkus, Carpenter's Mate, 2nd Class, (USN)
Leonard W. Quann (USA)
Isidor Richmond, Lt. Com. (USNR)
Lawrence L. Reeves, Lt. (USNR)
J. Hampton Robb, Capt. (USA)
Bernard Murray Rosenberg (USNR)
Nathaniel Saltonstall, Lt. (USAAC)
Stanley S. Setchell, Lt. (USNR)
J. Donnell Sullivan
Raymond K. Thompson, Lt. (j.g.), (USNR)
John A. Valtz, Lt. (USNR)
Sherburne Watts, Col. (USA)
Charles G. Weatherley, Cpl. (SUA), (C.E.)
Eugene B. Weisberg, Ensign (USNR)
Harold B. Willis, Col. (USA)

Michigan

Emil Becsky, Carpenter's Mate, (USNR)
Slanley Bragg, Lt. (USA)
D. L. Braun
Paul E. Flanagan
Barry Frost
Cornelius L. T. Gabler (USMCR)
Fred Hall, Cpl. (USA)
Ralph W. Hammett (USA)
Don Hunter (USA)
Hugh T. Keyes, Maj. (USA), (C.E.)
Edgar R. Kimball, Capt. (USA), (C.E.)
Robert Knox (USNR)
Norman Krecke, Maj. (USA), (C.E.)
Leslie G. Larkin, Capt. (USA), (C.E.)
Wm. H. McCarthy, Col. (USA)
Miller E. McConnell, Capt. (USA)
Geo. Y. Masson
Arthur H. Meesing, Lt. (j.g.), (USN)
Harry Newman
C. Wm. Palmer, Lt. Com. (USN)
Leo I. Perry
J. Russell Radford
W. R. Ralston, Sgt. (USA)
R. P. Raseman (USN)
Carl Rudine, Lt. (j.g.), (USNR)
Henry W. Ruifrok (USN), (C.E.)
Cyril Edw. Schley, Capt. (USA), (C.E.)
Neil Schloz, Sgt. (USA)
Verne H. Sidnam (USA), (C.E.)
James A. Spence, Lt. (USNR)
Lt. Gordon H. Stow (USA)
Thos. S. Tanner, Lt. (USN)
G. Harold Thompson
Walter E. Thulin (USN)
A. D. Walker, Capt. (USA)
Arthur H. Zimmerman (USA), (C.E.)

Mississippi

John T. Collins (USN)
Frank Fort, Lt. (USA)
Earl Truman Gilmore, Lt. (s.g.), (USN)
T. Roscoe Hearon, Lt. (USA)
J. E. Miller (USNR)
Dudley White, Lt. (j.g.), (USN)

Missouri

Joseph R. Arena (USA), (C.E.)
Arthur E. Ball (USA), (C.E.)
J. Edw. Balston, Lt. (Submarine Fleet), (USN)
Wm. L. Balson
Wm. A. Bernoudy, Lt. (j.g.), (USN)
Donald Bishop (USA)
J. J. Bothman, Lt. (USA)
Roy Brackman (USA)
John L. Brockmeier, Lt. (USA)
Robert U. Cassilly (USSG)
G. Victor Davis, Lt. (USN)
Robert L. Fischer (USN), (Midshipman School)
John Geisel, Lt. (USA)
Alvin Governick (USA)
Lawrence Gregory (USA)
Carl Tohmsen Guth, Sgt. (USA)
Leonard G. Haeger, Lt. (USNR) (Civil Engineering Corps)
Ralph Cole Hall, Lt. Com. (USN), Procurement Div.)
Leland E. Hamel (USA)
Franklin Harrison, Lt. (USAAC)
Warren L. Henderson, Cpt. (USA)
Irvin Horowitz (USA), (Signal Corps)
Robert R. Jacobsmeyer (USA)
J. Y. Johnson (USN), (Construction Battalion)
Warren Jolley, Prob. Ensign (USN)
Thomas W. Kirk, Lt. (USN)
Clarence Kivett
Robert Lauder (USA)
Sam Lief, Lt. Com. (USN)
L. Ray Leimkuehler, Major (USA)
Dwight Ludden (USA)
Russell H. Matson, Ensign (USN)
Michael Miklas, Ensign, (USN) (Seabees)
Watson Murphy, Carpenter's Mate (USN)
Edouard Mutrux, Lt. (USA), (Quartermaster Corps)
Robert Mutrux, Lt. (USA), (C.E.)
C. Richard Nash (USN), (Air Corps)
Frank Niedner, Lt. (USA), (C.E.)
Chas. E. Peterson, Lt. (USN), (C.E.)
J. Edward Rottmann (USA), (Signal Corps)
Arthur R. Schmidt, Lt. (USA)
John Schroeter, Lt. (USA)
Wm. G. Seeger (USN)
Lawrence J. Seffens, Chief Carpenter's Mate (USN)
Frank I, Simpson (USAAC)
Sam C. Sit, Pvt. (USA)
Russell Stokes (USA)
Vernon Stone, Ensign (USNAC)
Lioney Gay Tetley, Jr. (USN)
S. Van Deusen (USA)
George F. Voss, Seaman, 1st Class (CG)
Allan Walter (USN), (Air Corps)
Wilson Weiert, Lt. (USA)
Trezvant Winfrey (USA)

New Hampshire

Walter F. Noyes, Jr., Lt.

Nevada

Edward S. Parsons (USA)

New Jersey

David W. B. Haining, Jr. (USA)
William M. Hunt (USA)
Wilbur H. Lewis, Jr., Lt. (USA)
Augustus E. Melanson (USA)

New Mexico

W. Miles Brittelle (USA)

New York

Lewis G. Adams, Lt. (USNR)
Arthur E. Allen, Lt. Co. (USA)
W. F. R. Ballard, Major (USAAC)
Le Roy Barton, Col. (USA)
Wm. Harmon Beers, Lt. Col. (USA)
Nicol Bissell, Ensign (USNR)
C. B. F. Brill, Major (USA)
Maurice A. Capobianco, Lt. (USA)
J. Hamilton Coulter, Lt. (USNR)
Charles Crane, Lt. Col. (USA)
W. D. Dickinson, Jr., Capt. (USA)
Clarence Donath, Chief Petty Officer (USN)
Charles P. Donnelly, Lt. (j.g.), (USN)
George A. Douglass, Jr., Lt. (USA)
John R. Edgar, Pvt. (USA)
Vernon C. Elmore, Lt. (USA)
Douglas K. Godspeed, Ensign (USNR)
Edgar H. Grantham (USA)
William Halbert (USA)
Daniel Paul Higgins, Jr., CPO. (USNR)
A. Hart Hopkins, Major (USA), (C.E.)
Robert I. Hoyt, Ensign (USNR)
R. Maxwell James, Major (USAAC)
Francis Kapp (USA)
Walter J. Konrady, Lt. (USMCR)
Rauni G. Lampe, Lt. (USA)
Charles A. Luckhurst, Lt. Co. (USAAC)
James Donald MacMullen, Col. (USA)

Harry W. McConnell (USA)
James C. McGinn, Jr. (USA)
Joseph E. Mack (USN)
Rufus Meadows, Sgt. (USA)
Albert Melniker, Tech. Sgt. (USAAC)
Willis N. Mills, Capt. (USMC)
Alexander P. Morgan, Lt. Com. (USNR)
Stephen P. Nolan, Lt. (USNR)
Adolph Novak, Lt. (USA)
John J. O'Connor, Lt. (j.g.), (USNR)
Earl W. Ohlinger (USNR)
Edwin B. Olsen, Lt. (USNR)
Raymond Willard Olson, Camouflage Technician (USA), (C.E.)
Burton Parnes (USA)
T. Merrill Prentice, Lt. (USNR)
Van F. Pruitt, Capt. (USA), (C.E.)
Benjamin J. Rabe, Lt. (USA), (C.E.)
Richard Roth, Lt. (USN), (Seabees)
Herbert T. Seipel
James Kellum Smith, Lt. Col. (USAAC)
Carl B. Stoye, Ensign (USNR)
D. D. Streeter, Col. (USA)
H. C. Struppmann, Lt. (USNR), (Civil Engineering Corps)
Seth Talcott, Lt. Com. (USNR)
Otto Teegen, Lt. (USNR)
W. G. Thayer, Jr., Lt. Com. (USNR)
Walter D. Toy, Jr. (USA)
Ides van der Gracht, Capt. (USAAC)
Gustave G. Vigouroux (USMM)
Lorenzo G. Voight, Major (USA)
E. W. Vollintine (USA)
Lawrence Grant White, Lt. (s.g.) (USNR)
Harold E. Williams (USA)
Frederick J. Woodbridge, Lt. (USNR)

North Carolina

T. W. Cothran, Capt. (USA)

North Dakota

Verl E. Texley (USA)

Ohio

Reeves K. Biggers, Lt. (USNR)
Emiel J. Christensen (USA)
Francis V. Cornelius, Lt. (j.g.) (USN)
A. C. Denison, Lt. (USNR)
Antonio di Nardo, Major (USAAC)
Robert P. Harsh, Col. (USA)
J. P. Hayes (USA)
Myron T. Hill, Lt. (USNR)
Walter J. Hoffrogge, Cpl. (USA)
Thomas Larrick, Lt. (USA)
Byron L. McClellan, Jr. (USA)
F. J. McFadden (USA)
John Edward Miller (USA)
Robert C. Morley (USA)
William K. Shilling, Major (USA)
Frederick W. Smith, Cajt. (USA)
George F. Sutila (USA)
Edgar D. Tyler (USA)
Howard H. Vogel, Petty Officer (USN)
Travis G. Walsh, Major (USAAC)
Thomas Wetherall, Sgt. (USA)
Thomas C. Wiggers (USA)
J. Davis Wilson (USA)

Oklahoma

G. W. Aderhold, Lt. (USA)
Roy D. Clem (USA)
C. P. Holt (USNR)

Pennsylvania

Roland T. Addis, Capt. (USA)
Walter Antrim (USA)
John S. Barber (USN)
W. Pope Barney, Major (USA)
John A. Bower, Capt. (USA)
Leon Brown (USA)
Theodore Clattenburg (USA)
Irving Coryell (USA)
Kenneth Day (USN)
John Lane Evans (USN)
Thomas W. Ferguson, Jr. (USA)
John Hammond (USN)
James S. Hatfield (USA)
John C. Hermann, III (USN)
William E. Hoover, Jr., Lt.
James E. Jackson (USA)
H. Martin Kneedler (USA)
Paul E. Kohler (USN)
Lloyd Malkus (USNR)
Brinton Martin (USA)
Wm. David Miller (USA)
Henry D. Mirick (USA)
Frank P. Patterson, Jr., Lt. Com. (USN)
Edmund R. Purves, Capt. (USAAC)
Frank E. Sagendorph, 3d (USN)
Wm. C. Scheetz, Jr. (USN)
John N. Sill (USA)
Wm. Nicholson Taylor (USA)
W. L. Van Alen (USN)
Frederic G. Warner (USA)
Harold Webber (USN)
Theo. Ballou White (USA)
Louis M. Wolff, Major (USA)
C. Clark Zantzinger (USN)

Rhode Island

David Aldrich (USA), (902 Engrs.), (AF Hq. Co.)
Lucio E. Carlone, 201st Hospital Ship Co.
Cheslie M. Carpenter (USCG)
Paul N. Fontaine, Lt. (USA)
Oliver O. Gauvin (USA)
J. Peter Geddes, Capt. (USA), (OTS)
Alan Hibbert (USA)
Lloyd W. Kent, Lieut (j.g.) (USNR)
Claus R. Moberg, Lt. (USNR)
Joseph A. Murphy (USCG)
James E. B. Walker (USCG)
B. G. V. Zetterstrom, Major (USA)

South Carolina

J. Whitney Cunningham
Robert B. McCalley (USA)

Tennessee

Robert Taylor Anthony (USA)
Clinton E. Brush, Lieut. (j.g.), (USN)
L. K. Cardwell, Capt. (USA), (C.E.)
William Plummer Cox (USA)
Arch Y. Davis, Jr. (USA)
T. E. Eddins (USA)
T. F. Faires (USA)
Anker F. Hansen, Lt. (USCG)
W. T. Hall, Lieut (j.g.), (USN)
R. E. Harrison (USA)
John E. Harwood, (USAAC)
James Bolton McBryde, Lt. (j.g.), (USNR)
W. D. McKinnie, Jr. (USA)
Robert W. Montgomery (USA)
Marcus F. Nickerson, II, Petty Officer (USNR)
J. Clyde Seal, Capt. (USA), (C.E.)
Earl C. Smith, Major (USA)
Edw. S. Thorn, Lieut. (j.g.), (USN)

Texas

Chas. Armstrong, Lt. (USA)
Howard Barr, Ensign (USNR)
Robert Max Brooks, Lt. (j.g.), (USNR) (Seabees)
Hamilton Brown, Lt. (j.g.) (USN)
J. I. Campbell, Lt. (USA)
Leonard B. Conley (USA)
David G. Connally, Jr., Lt. (USA)
Paul Henry Coy, Ensign (USNR)
Cameron Fairchild, Capt. (USAAC)
Arthur Fehr (USA)
Lenard Gabert, Capt. (USAAC)
Delmar Gross, Lt. (j.g.), (USNR)
Louis Hamby, Major (USA)
Wm. V. Harber, Major (USA)
Walter C. Harris, Lt. (USAAC)
Henry S. Hoffman, Lt. (j.g.) (USNR)
Claude Hooton, Lt. (s.g.), (USN)
Harrold Jessen, Lt. (j.g.), (USNR)
George Johnson, Lt. (j.g.), (USNR)
C. A. Johnson, Capt. (USAAC)
Karl F. Kamrath, Lt. (USAAC)
Theo. Keller, Capt. (USAAC)
Wm. J. Lang, Major (USA)
Roy Leibsle, Col. (USA), (C.E.)
Fred J. MacKie, Jr., Major (USAAC)
W. Addison McElroy (USA), (C.E.)
Hugh L. McMath, Capt. (USAAC)
Theodore S. Maffit, Capt. (USA)
Howard R. Meyer, Capt. (USA)
Seth I. Morris, Ensign (USN)
Hal M. Moseley, Lt. (USA)
William E. Nash (USA)
Donald S. Nelson, Lt. (USA)
Stayton Nunn, Col. (USA)
George Page, Ensign (USNR)
W. L. Parker, Lt. (USA)
E4ward L. Rankin, Major (USA)
Richard Rowe, Lt. (USAAC)
John Scott, Ensign (USNR)
Louis Southerland, Lt. (j.g.), (USNR)
John F. Staub, Lt. Com. (USNR)
Herbert M. Tatum, Capt. (USA)
James Teague, Lt., (USA)
R. H. Tolson (USA)
Benjamine K. Wyatt (USA)
Talbor Wilson, Capt. (USA)

Utah

Erwood P. Eiden, Capt. (USA)
John Fetzer, Lt. (USA)
Charles E. Fry, Capt. (USA)
S. C. Hutchins (USA)
Dan A. Weggeland, Pvt. (USA)
Lorenzo S. Young, Capt. (USA)

Vermont

Frederick W. Mast, Lt. Col. (USA)
Robert P. White, Lt. (USA)

Virginia

H. Coleman Baskerville, Lt. (USA)
Henry B. Boynton, Lt. Col. (USA)
Orin M. Bullock, Jr., Lt. (USA)
E. Tucker Carlton, Lt. Com. (USNR)
Pendelton S. Clark, Lt. Com. (USNR)
Forrest W. Coile, *Captain* (USA)
Francis Drischler, Lt. Col. (USA)
John L. R. Grand, Lt. (USA)
Henderson Heywood, Ensign (USNR)
Clarence W. Huff, Jr., Capt. (USA)
Albert D. Leuders, Capt. (USA)
Fred L. Liebmann (USNR)
Robert S. Loney, Capt. (USA)
Walter R. Nexsen, Lt. (USA)
Marvin L. Parler, Jr., Major (USA)
William J. Phillips, Lt. (USA)
Truehart Poston, Lt. (j.g.), (USNR)
Raleigh C. Powell, Jr., Lt. (USA)
Walter K. Smith, Jr., Capt. (USA)
Fred C. Schaus, Ensign (USNR)
Louis P. Smithy, Lt. Col. (USA)
Richard F. Taylor, Capt. (USA)
Thomas C. Washington, Jr., Lt. (USA)
Joseph W. Wells, Lt. (USA)
L. C. Wright, Capt. (USA)
Marcellus E. Wright, Jr., Capt. (USA)

Washington

Fred K. T. Ahlson, Lt. (USA)
Bissell Alderman (USN)
Don D. Bickford (USN)
Leonard Bindon, Capt. (USA)
Harry F. Broman, Lt. (USA)
Wm. H. Carleton (USA)
Elso B. DiLuck, Major (USA)
Carl F. Gould, Jr. (USN)
Lance E. Gowen, Captain (USA)
George W. Groves, Captain (USA)
Sam Halfon, Lt. Commdr. (USN)
Palmer Koon (USA)
Harry Lockland, Major (USA)
R. E. Lytel (USN)
Harry R. Meyers, Major (USA)
Harrison J. Overturf, Captain (USA)
Victor Steinbrueck (USA)
Royal A. McClure (USA)
Edward K. Mahlum, Lt. (USN)
John O. Phillips, Jr. (USN)
Paul Richardson (USA)
James P. Savery (USA)
Lawrence G. Waldron (USN)

West Virginia

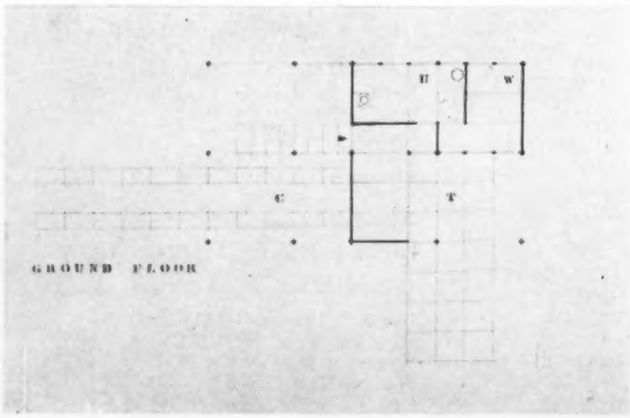
Robert E. Martens, Lt. (USA), (C.E.)

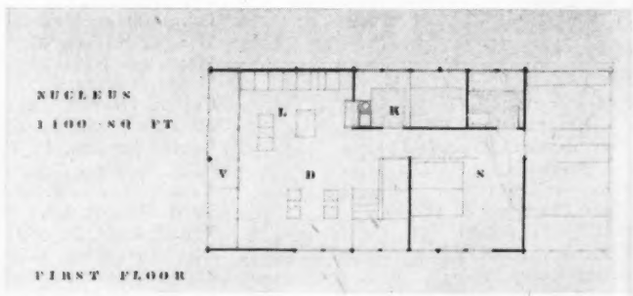
Wisconsin

Bruce F. Lawrie (USA)
Marshall T. Munz (USCG)
Sylvester J. Stepnoski, Lt. (USA)
Fred A. Wegner (USN)
Sigmund W. Talarek (USA)

Variety of Houses from Identical Prefabricated Units

Designed by Harvard Students



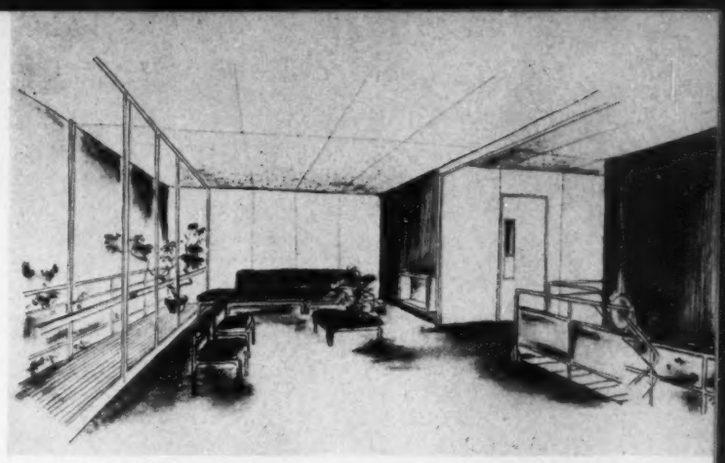


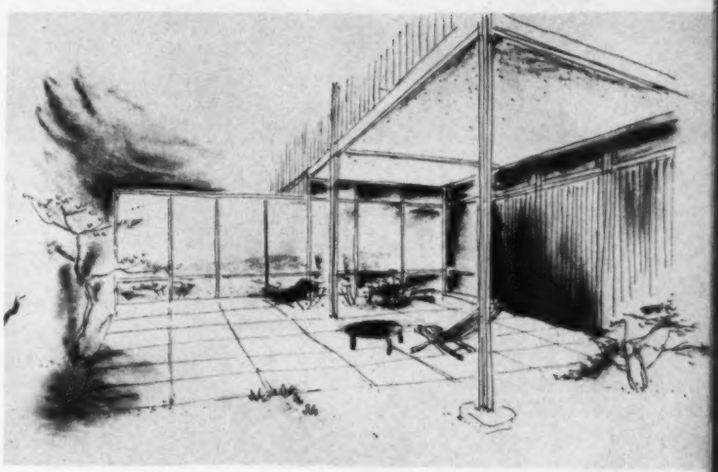
Last April, NEW PENCIL POINTS reported the development of a new system of prefabrication devised by Konrad Wachsman and Walter Gropius, and marketed by the General Panel Corporation. Based on a cubical module, 3 ft. 4 in. on a side, the system makes use of wood-framed panels 10 ft. long and equal to a module in width. Horizontal panels are available in three lengths, multiples of the module, for achieving variety in plan. These are joined by a metal-clip-and-wooden-wedge connector. The standardized panel unit can be used in any position, as wall, ceiling, or any other part of a building without structural change.

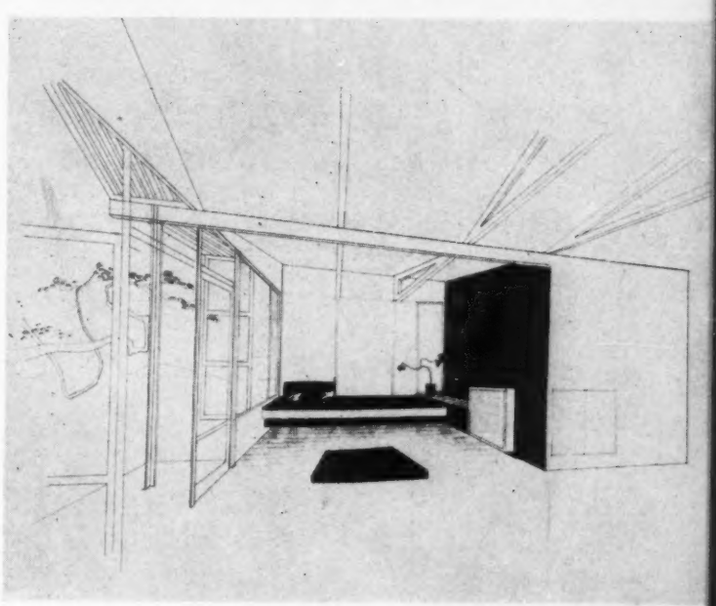
This system has a virtue which many others lack: it is possible to build with it any type, or shape, or style of building desired. At the School of Architecture, Harvard University, Professor Gropius has given his students problems in the design of houses to be built of prefabricated units. Naturally, the General Panel Corporation system was employed. In the few examples of student work shown here, there is demonstrated the great variation possible in designing for prefabrication. In one respect greater variety might have been achieved. The General Panel Corp. has stated that any material might be used to surface the panels; the vertical siding shown last April was only one of many suitable materials. Nevertheless, in spite of the fact that all these schemes show vertical siding, there is in them confirmation of a belief held by many proponents of prefabrication: that monotony of design, advanced as an argument against any form of "prefab," exists only because the designer is unable fully to exploit an unfamiliar medium.

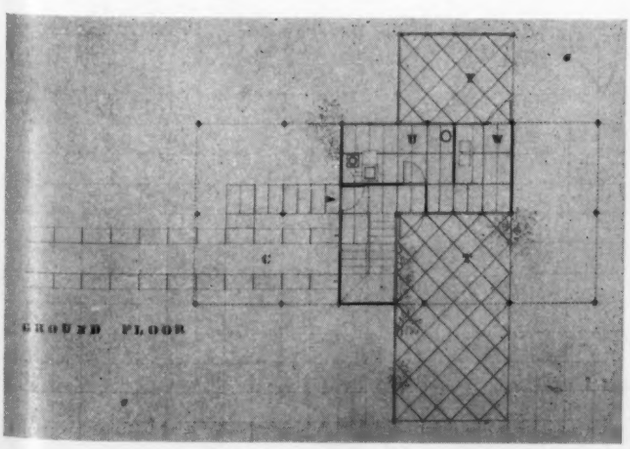
The house on these two pages was designed by Dahong Wang. At the bottom of page 76 is the plan of the nucleus, with carport, entry and stair, utility room, laundry, and terrace on the ground floor. On the first floor are living and dining space, verandah, kitchen, bath, bedroom. At bottom of this page, the plan is expanded. At right, views of indoor living areas and terrace.

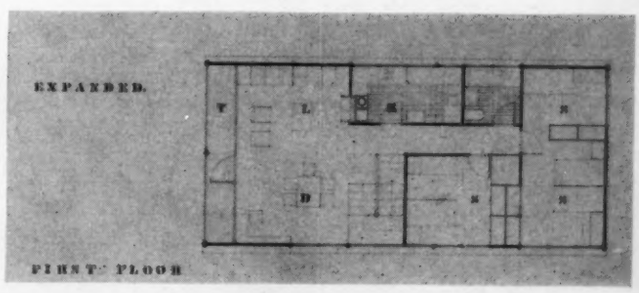
of General Panel Corp.



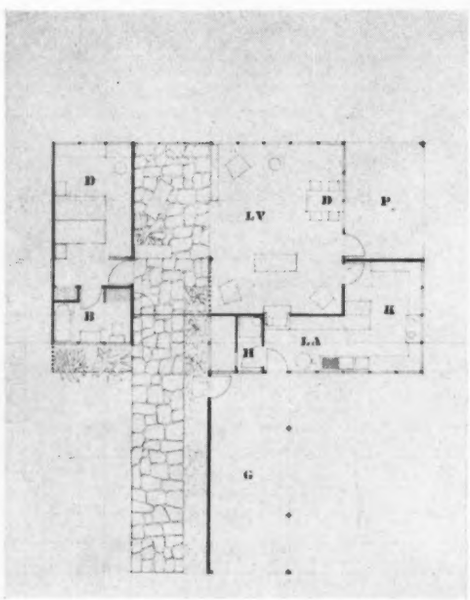


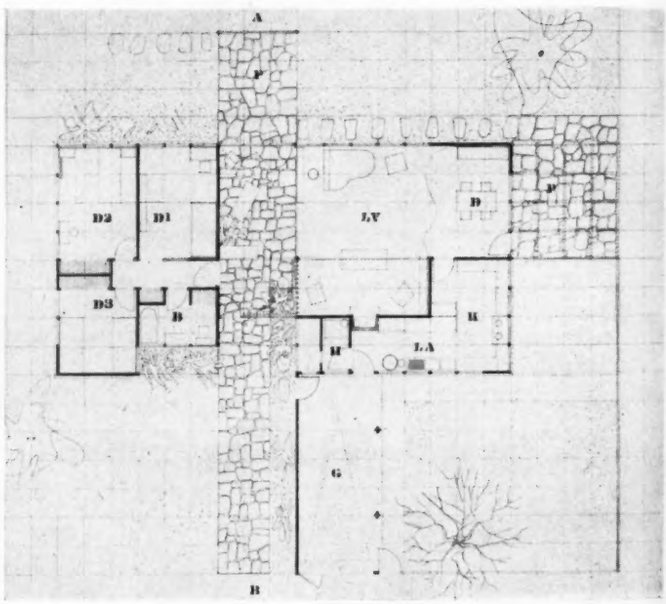




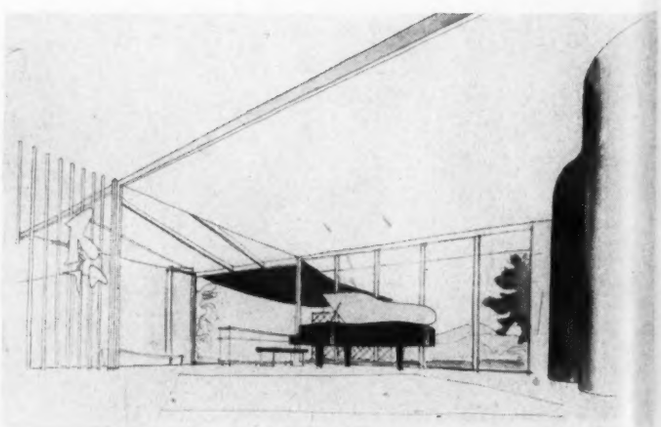


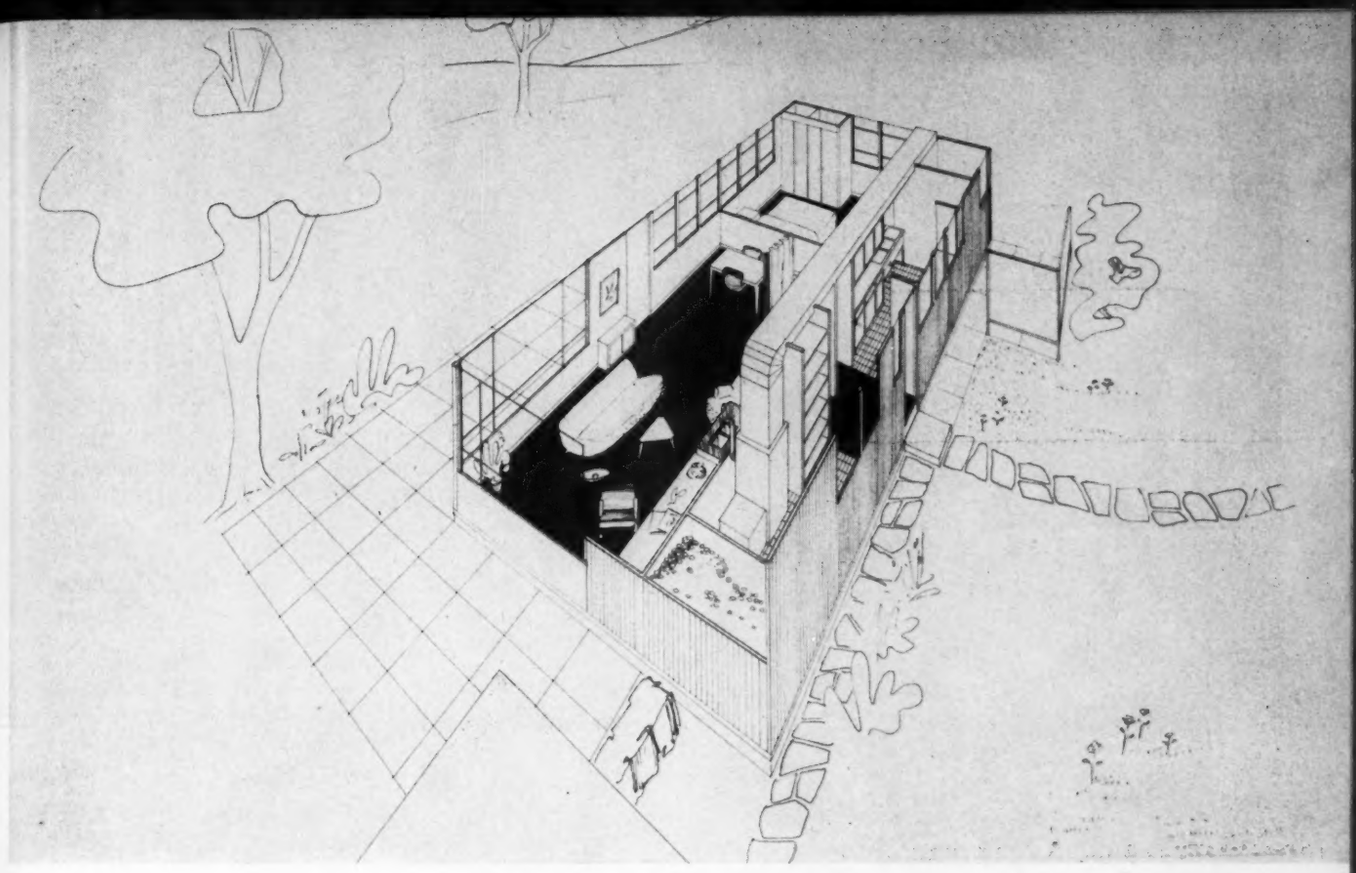
On this page is shown the house designed by Emile Duhart. It employs the identical prefabricated units used in designing the houses on preceding and following pages. Photo of model, above, shows the expanded house.

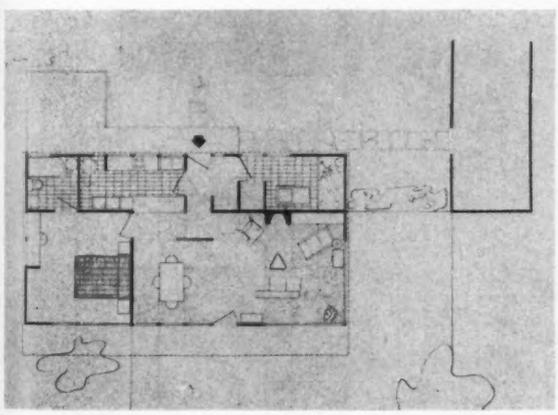


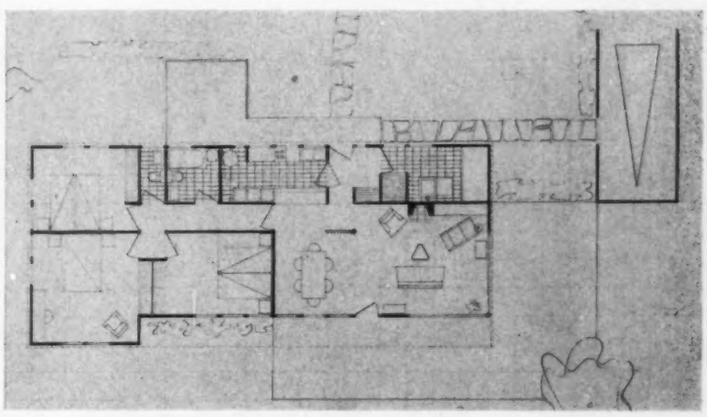


Plan above, left, is the nucleus; at right, the expanded scheme. This house is all on one floor, has at the beginning living and dining space, kitchen, laundry, bath, bedroom, porch, garage, heater room. Later, more bedrooms, indoor living area, and outdoor living space can be added. At right is a perspective of the living room interior.

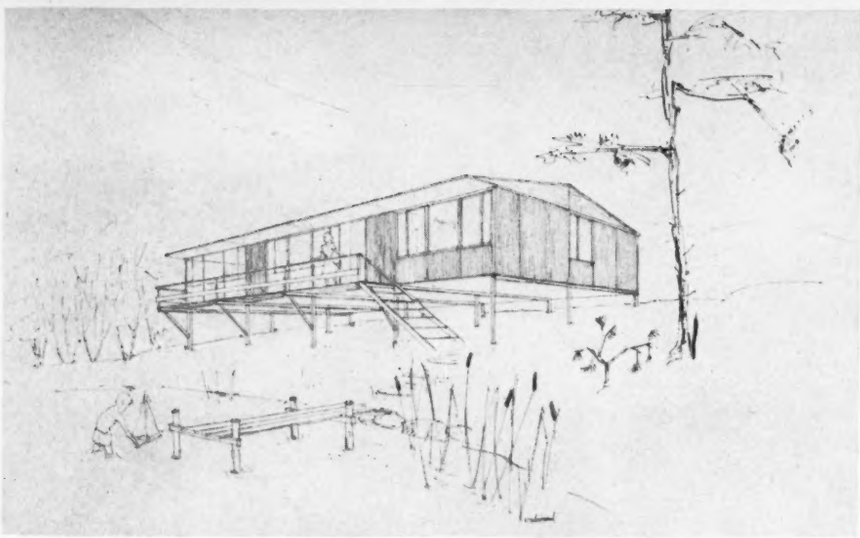


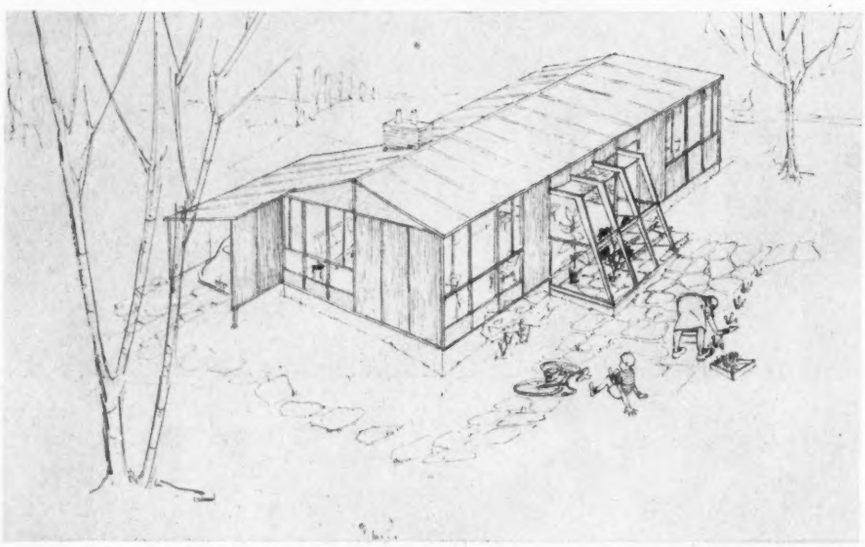


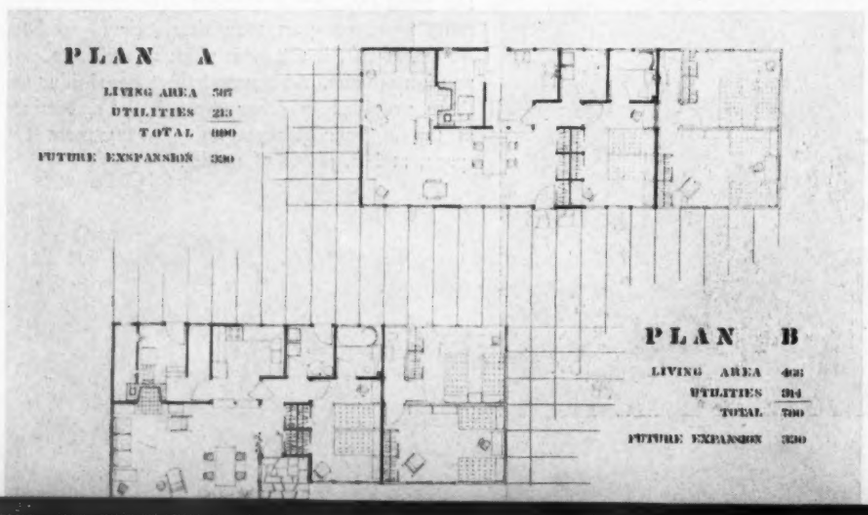




Designed by Octavis Mendez, this example appears more compact than those shown so far. Above, at left, is the basic plan; at right, an expansion scheme. Accommodations are similar to those provided in other examples. Perspective at top of page illustrates the arrangement of space; at left, photo of model.

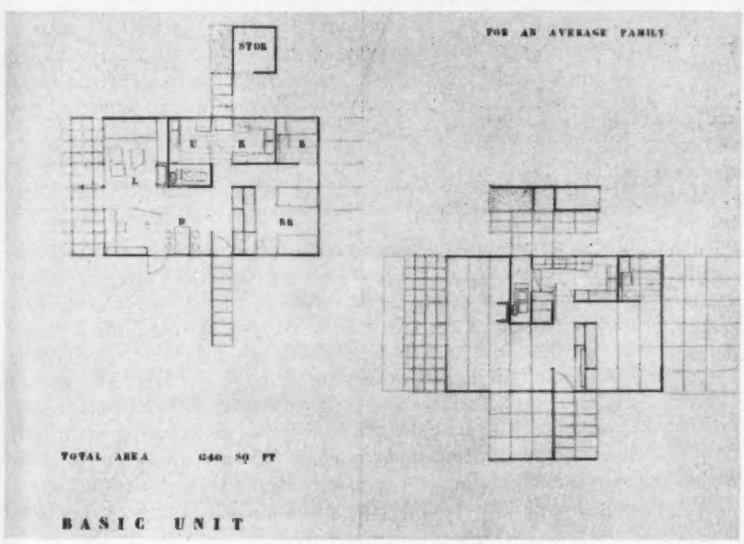


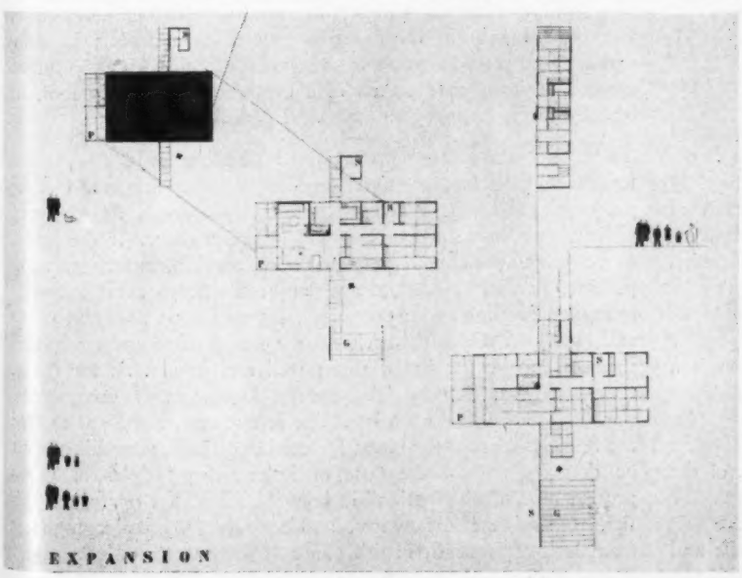




Suzanne Underwood, who designed the house on this page, has added to it a conservatory; otherwise, General Panel Corp. units are used. At left are, top to bottom, photo of model; perspective showing adaptation of house to a lakeside site; perspective showing conservatory added alongside the entry; and plans.

Miss Underwood developed two plans. Both contain approximately the same accommodations, although Plan A has perhaps a more cramped living area and waste space in the portion devoted to dining. In both plans, portion shown with black walls is for initial construction; lighter area is for future expansion.





Teoh Ming Pei, designer of the house on this page, has anticipated several stages of family growth and consequent enlargement of the house. The basic unit, shown above at left, is subject to some variation, principally in the utility areas of the house. Two examples of plan arrangement are shown. At bottom, the basic unit appears at upper left of the drawing as the dark rectangle; center, with some added area; right, with more on the first floor and a second floor, containing a row of sleeping rooms, a passage, and a stair, added.

It is unfortunate that space does not permit showing another drawing made for this house. In it, adaptations were made to suit various site conditions: storage space, porch, and garage were relocated to accommodate different outlooks and means of access.

Building Codes for Prefabrication

by Gerald Lynton Kaufman, A. I. A.

According to a recent trade definition "a prefabricated house is one that is designed, manufactured, and distributed through . . . the use of industrial principles of mass-production and distribution." Prefabricators estimate that out of the anticipated post-war demand for well over a million new homes per year, 750,000 will be mass-produced and distributed. As for the *design* of these homes, it may be assumed that at least a half-million will be standard types or modifications thereof, prepared either in prefabricators' drafting rooms or by architects engaged or employed directly by the producers.

Mass Production vs. Individual Needs

When homes are designed to fit patented unit or module or panel systems, or assembly-lines, the interests of the customer-client and of the community must perforce be subordinated to the exigencies of corporate machinery and processes. Mass production demands mass sales; hence disinterested professional service is almost impossible. Prefabricators must compete not only with each other, but with independent local architects whose reputations demand that they consider client and community needs over everything else.

Dangers of Wildcat Prefabrication Boom

The dangers of an uncontrolled building boom are well known. The remedy is not to arrest nor restrict technological progress, but rather to provide for *disinterested* professional control over mass-production housing, similar to that formerly exercised by residential architects—under building code requirements—over "custom-built" housing. A properly *controlled* building boom is healthy. It might be the means for prefabricators and independent architects to get together, not only for their own ultimate benefit, but for the good of everyone concerned . . . even including the home-owner! But to get together without combining or conspiring, and without mutual commitments, they must recognize the community itself as their common employer and they must realize that its continuing prosperity and good will is their joint concern.

The community has a vital interest in the houses erected within its borders, as evidenced by building codes and zoning laws, written to protect life, limb, and property rights . . . but not to protect investment! No code has yet been devised to guard against the hazards of over-building or uneconomic building; against the causes of foreclosure and bankruptcy with the resulting loss of taxpayers, industries and home-owners. No such code is possible under a democracy (in which each of us has the right to lose his fortune in whatever way he chooses). But it is possible, and increasingly necessary, for communities to have greater control over the location, type and quantity of speculative mass-production housing within their borders. It is desirable to have jurisdiction and limitation (other than that established by trade unions) over the type and quantity of imported labor and materials used in competition with local industries, lest an uncontrolled influx of mail-order houses ruin the building trades, or lest over-built or over-sold colonies of jerry-prefabricated houses ruin the community.

What Mass-Producers Themselves Can Do

The producers themselves might do well to recommend such a modernization of local codes, for their own ultimate good. They might re-define the Prefabricated House on a basis of the percentage of the finished product shipped from a single factory. They might advocate the establishment by zoning boards, of the location, type, and quantity of imported housing *required for local needs* in each community. But of greater import than any of this, they might recommend regulations to cover permits and supervision . . . not only to protect the home-owner and his township, but to protect *themselves* from the competition of irresponsible rivals; to protect themselves from those favoring unorthodox selling methods on shoestring credit, over sound construction and legitimate financing.

Disinterested Professional Control

Here is where disinterested professional control enters the picture. For one such regulation might require that plans be filed by a local architect, *under his own name* (with written authorization from the manufacturer furnishing these plans under patent or copyright) before permits are issued for prefabricated homes. Another might require this architect to certify that he has personally superintended the construction and found it in complete compliance with all code requirements, before a Certificate of Occupancy is issued.

This would oblige the owner (individual or developer) to engage a local architect to advise him, for his own benefit, as to the type, size, cost, *and manufacture* of the house of houses best answering his own and the community's requirements. It would spare the owner a deluge of brochures, salesmen, and technical talk, while assuring him of disinterested professional advice before building, and service during construction. It would oblige the architect (licensed by the state) to give his best service; and by providing his employment in either case, would leave him free to *recommend* a prefabricated home over a design of his own, if convinced this would best serve his client.

Long-Term Benefits of Control

If a group or natural association of prefabricators were to advocate such procedure, it would gain far more than mere public approbation. By enlisting perhaps 3000 architects as potential salesmen, substantial sums might be saved in advertising, maintenance of agencies, and overhead involved in direct contact with the owner, the building department, and the local sub-contractors and trades unions. Prefabricators might be spared a punitive tax such as that levied against the chain stores for encroaching upon local industry; and since the latter would be automatically favored for foundation, grading, and similar work not supplied by themselves, they might be spared hostile jurisdictional rulings by building-trades labor unions. Although as individual producers they might lose possible orders through cutting down on salesmen and agents, they would gain in other orders placed by architects in competitors' territory, based *upon merit alone*. In short, they might forego the immediate profits of a mushroom building boom, to build instead, lasting good will and continuing demand.

These suggestions for "prefabricated building codes" are most tentative and elementary and nebulous; but they are meant to be provocative as well. Although admittedly open to all kinds of criticism, perhaps some of this will be constructive. If the job is to be properly done to prevent over-expansion, cut-throat competition, housing-saturation, and bankruptcies; to avert a boom-collapse-depression cycle; everything depends upon how and when and by whom the actual revisions are made. If the prefabricators themselves take the initial steps; well and good . . . for them. If they wait action by labor-unions, legislators or government bureaus, it may prove too late. But in any case, if we are to win the Peace and avoid the Great Depression of 1950, something must be done to control the "use of industrial principles of mass-production and distribution" in home-building, lest our communities, industries, home-owners, and taxpayers all suffer together from lack of foresight in this phase of post-war planning.

(Continued from page 16)

Products Progress

"Generators vastly more powerful than this therapeutic apparatus are serving in wartime radio and communications equipment by transmitting radio waves in beams. This engineering advance, now applied wholly to fighting the war, conceivably may bring about the peacetime expansion of wireless power," the lighting expert continued, adding:

"Baby brothers of the fluorescent lamps now so widely used in war plants are illuminating bomber cockpits and airplane instrument panels. After the war, these six-inch long and other miniature fluorescents will have many safety and comfort applications. Because they use less current than an electric clock, they can be left burning night and day for such jobs as lighting clock faces and house numbers.

"Meanwhile, here's a fluorescent laboratory development, admittedly crude, that we devised from two glass pie plates. Fluorescent lamps are not limited to tubular shapes. Such lamps as these, with their cool and shadowless light, offer both practical and decorative advantages for hotel halls and public buildings.

"And we've also discovered that we can use the tubular-shaped fluorescents in other than the conventional straight form. Because we can bend the tubing, circular lamps are a possibility for postwar homes.

"Those lamps can be made because we have learned to handle glass tubing much better, aided by studies of glass which in itself possesses properties of fluorescence, supplemental to the present phosphor coatings on the inside of clear tubing.

"In my conception of the home of tomorrow, I'd like a radiant heat lamp mounted in my bathroom ceiling or wall to warm me while shaving; I'd like a small portable one for a foot warmer, and many people might want them over their beds. Equipped with a filter to sift out light, such a bedroom ceiling unit would eliminate the need for heavy bed covers.

"This lamp is such an efficient heating unit," he continued, "that it can actually cook food." Then, turning the lens of the cone-shaped lamp upward so that its flat surface simulated a stove top, Mr. Hibben cooked bacon and eggs in four minutes.

"Along with a lamp for heat, I'd like in my bathroom a lamp for sunshine that would be as compact as the all-glass infra-red lamps you've just seen. Bathrooms of the very near future can have both of these lamps mounted in the ceiling or recessed in the

(Continued on page 86)

WALLS OF MONOWALL MEET EARLIER DEADLINES

LACK of time—and labor—need not hamper plans for essential remodeling. You can give your clients new walls and ceilings, of high peacetime quality, by specifying Armstrong's Monowall. This sturdy, attractive material goes up fast, saving time and keeping labor costs at a minimum. Rooms are ready for use immediately. There's no waiting for anything to dry or harden.

First, Monowall saves time and labor because no special preparation of wall or ceiling surfaces is required. Its large boards (up to 4′ x 12′) are quickly erected with Armstrong's CM-50 Cement to old or new plaster, gypsum lath, wood, or other dry and firm bases.

Second, any competent workman can do the job quickly and well, working alone. No unusual skill or special tools are required. Monowall cuts and trims just like wood, and is easily fitted into several types of joint-concealing channels and moldings furnished by Armstrong. Complete instructions are included in every shipment.

Third, there's no finishing to do—and that saves a lot more time. Armstrong applies Monowall's gleaming, durable finish at the factory. It's a surface which resists dust and stains, and which needs only an occasional wiping with a damp cloth and mild soap to keep it sparkling.

Armstrong's Monowall is designed for modern interiors—both commercial and residential. Its plain colors and scored tile-designs are adaptable to practically any decorative plan.

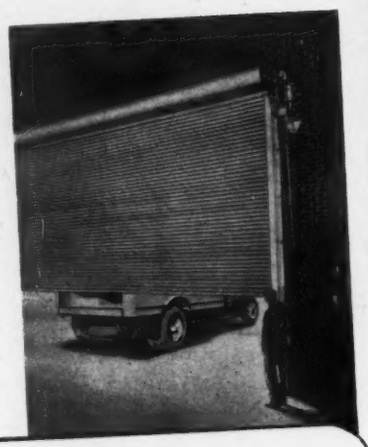
See Sweet's . . . and write for free samples and illustrated literature now. Write Armstrong Cork Company, Building Materials Division, 6912 Lincoln Street, Lancaster, Pennsylvania.

ARMSTRONG'S MONOWALL

The makers of TEMLOK INSULATION—Sheathing, Lath, De Luxe Interior Finish

POST-WAR PLANNING DATA

KINNEAR ROLLING DOORS



Kinnear Rolling Doors operate with *maximum* efficiency in *minimum space*. They save operating time and effort by opening easily and smoothly upward, coiling compactly above the opening. Their rugged interlocking slat construction provides durable protection against weather, intrusion and damage. Designed to meet individual specifications, they reduce installation, operation and maintenance costs. Kinnear Rolling Doors are made of wood or steel, to fit any opening. Equipped for motor or manual operation.

POST-WAR PLANNING DATA

KINNEAR BIFOLD DOOR . . . A rugged, quick-acting door of two horizontally hinged sections, with provision for any desired number of glass panels. Torsion-spring counterbalance assures easy operation. Any size. (Heavier-duty "telescoping" Kinnear Bifold Doors are also available.)

POST-WAR PLANNING DATA

KINNEAR RoL-TOP DOOR . . . An all-purpose door; ideal for residence garages. Consists of several sections fitted with ball bearing rollers, and operating in rugged steel tracks. Spring counterbalancing assures smooth, easy action. Has strong cylinder lock and special weather-tight "keystone" sealing device. Available with any number of light sections. Equipped for either motor or manual control. All sizes.

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1900-20 FIELDS AVE. COLUMBUS 16, OHIO

SAVING WAYS IN DOORWAYS

KINNEAR ROLLING DOORS

NEWS

(Continued from page 85)

wall. After a shower, with the flip of a switch, a man may bask in the warmth of infrared heat rays or take a sunshine bath under the ultra-violet lamp," he predicted.

Plastic Board

Said to be only half the weight of aluminum, a newly developed plastic board reportedly compares favorably with metallic alloys as to tensile strength and in ability to withstand strains. According to the manufacturers the board is a non-conductor of electricity, will withstand great vibration, is not affected by any corrosive fluids, acids, most alkalis, solvents, etc.; and it can be cut, bent, or formed easily. Developed for war uses, it is expected to find many uses in postwar house design. (United States Rubber Co., Rockefeller Center, New York, N. Y.)

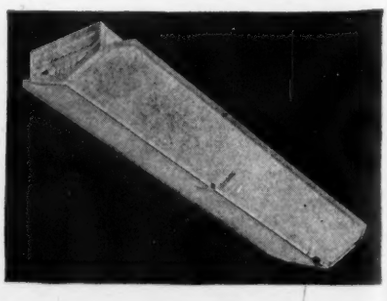
Non-Organic Coating for Metal

A new metal coating, "Poroseel," is neither paint nor porcelain in nature, although it may be sprayed or dipped in one or more coats, on sheet steel, malleable or cast iron. Stated to be highly resistant to corrosion, acids, solvents, abrasion, and temperatures in excess of 1100° F.; and to be non-toxic, homogeneous, and odorless, it is offered for coating available steel which has to be used where normally more highly corrosion-resistant material would be employed. Many postwar applications are expected. (Pemco Corporation, Baltimore, Md. [formerly Porcelain Enamel and Manufacturing Co.])

Industrial Fluorescent Luminaire

Moisture-resistant, non-metallic reflectors in tandem, with a one-piece, double-length hood, have been announced. Called Type FNC Luminaire, it is available for either four or six 40-watt, or four 100-watt fluorescent lamps. Mounting arrangements are available for any application. Easy continuous-strip installation and easy maintenance are said to be featured. (Westinghouse Lighting Division, Edgewater Park, Cleveland, Ohio.)

Commercial Fluorescent Fixtures



On December 1, 1943, lighting equipment manufacturers are permitted to resume pro-

(Continued on page 88)

MORE WOMEN ON AMERICA'S PRODUCTION LINE . . .

Well planned "HEALTH ZONES" keep them there!

TODAY, each production hour finds more women replacing men in vital home-front jobs. Each hour finds, too, illness continuing to take a tremendous toll of industry's efficiency—a toll averaging one week's production time a year!

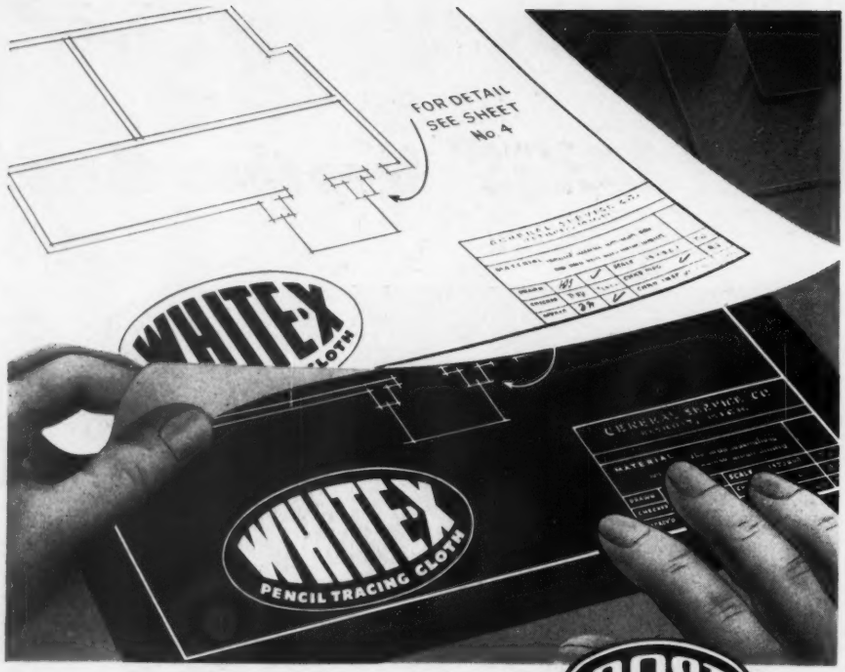
To hygiene-conscious architects, these facts mean plenty. Because *at least half* this serious loss is due to minor contagions like common colds and their complications. In other words, the type of disease which *your planning* can help check among these women workers. For health records definitely prove that properly equipped washrooms with adequate supplies of soap, hot water, and individual tissue towels cut down the spread of minor illnesses.

Such washrooms are literally "health zones." They combat absenteeism at its most important source.

And Scott Paper Company can help you design them. The second edition of the Scott Washroom Advisory Service Manual gives basic washroom layouts and suggestions that insure maximum sanitation . . . effective use of all equipment . . . a smooth flow of traffic.

For your copy, and a set of Don Graf Data Sheets on washroom planning, write Scott Paper Co., Chester, Pa.

SCOTT WASHROOM ADVISORY SERVICE



POST

New "HARD-PENCIL" PRINTABILITY MAKES ETCHING-SHARP PRINTS

The glass-like transparency of WHITE-X plus the fact that hard pencil lines on its velvety white surface are opaque, jet-black and smudgeless, result in high-legibility prints as sharp and clean as a hound's tooth. The high-gloss dust-repellent back, moisture resistant character and cloth durability make WHITE-X the most popular pencil drawing medium in use today.

Write or phone our Chicago office or your nearest Post dealer for Free sample of White-X. Fine tracing media and sensitized papers are ready for immediate delivery.

The Frederick Post Co.

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(Continued from page 86)

duction of commercial fluorescent fixtures. One of the first announcements of such new fixtures concerns the "Aristolite" line, made in sizes for two, three, or four 40-watt lamps. To reduce reflected glare, easily removable lens-design glass panels are employed. 85 percent of the light is reflected downward. (Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo.)

Super-powered Industrial Fluorescent Luminaire

"Quick-Liter" is a high-powered industrial luminaire that operates standard 40-watt and 100-watt fluorescent lamps, with a "super-ballast" which utilizes a patented wiring circuit to start lamps without starter switches. Operation on wider varying voltages and temperatures are also claimed for Quick-Liter. It is available in sizes for two 40 watt and two 100 watt lamps, either 110-120 or 220-240 volts. All wiring and ballasts are fully enclosed in a new top-housing which conforms to latest W.P.B. steel limitations. Positive "flexible trigger" supports allow quick easy reflector removal. Bump-proof end-plates give added lamp-holder protection. Eggcrate louvers are available for lamp shielding, where desired. (Edwin F. Guth Company, 2615 Washington Blvd., St. Louis 3, Mo.)

Pencil Tracing Cloth

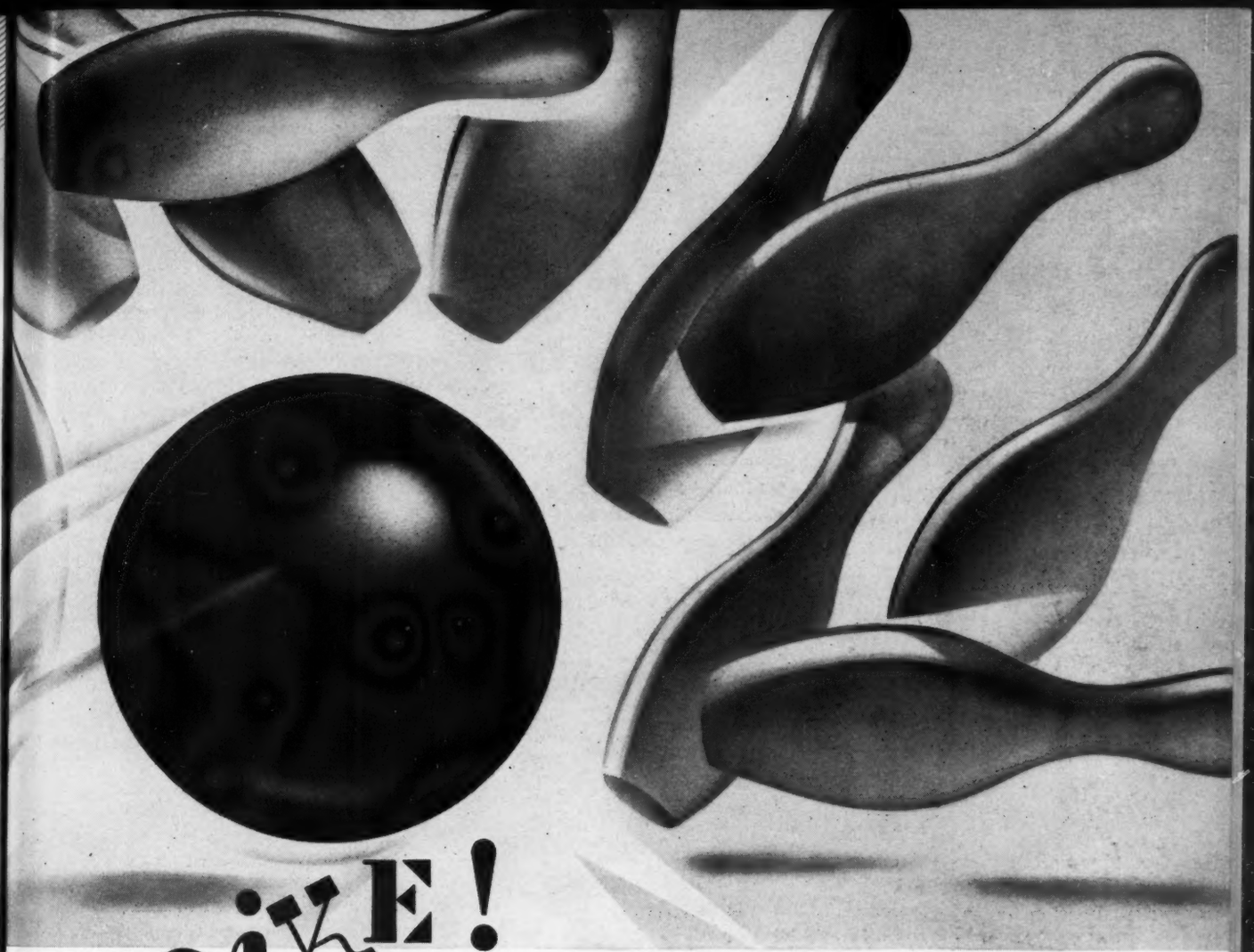
"Whitex" pencil cloth is said to take a jet black line from a 6H pencil, to make sharp, clear prints, and to stand up well under constant service. Back is designed to be dust-repellent, and both sides are reported to be moisture resistant. (John R. Cassell Co., Inc., 110 W. 42nd St., New York 18, N. Y.)

Plexiglas Moulding Powders

Formerly known as "Crystalite," the molding materials produced by Rohm and Haas are henceforth to be called Plexiglas Molding Powders. Used before World War II for edgelighted auto instrument dials, auto trim, brush backs, etc., Plexiglas powders are today used in war material, such as blackout lenses for military vehicle lights, gas mask lenses, etc.

Panelboards for Greater Loads

To meet demand for large-capacity panelboards required for increased light and power loads, a panelboard replacement scheme has been devised. Circuit breakers replace fuses, wiring is restudied, replaced with thinwall wire if necessary, etc. (Square D Company, 6060 Rivard Street, Detroit 11, Mich.)



STRIKE!

THEN WE'LL *SET 'EM UP IN THE OTHER ALLEY*

The armed forces are good enough to say that we are really mowing 'em down—in our war time job of making small parts for planes, tanks, guns—fighting units of all kinds.

But even as our factory hums with this vital war production, our engineers are laying plans to quickly "set 'em up in the other alley" when war is done.

In those days we know there will be many doors to close quietly . . . a hundred and one demands for door closers. Plans LCN is making today mean we will be ready then to supply you with products to sell . . . products geared to a new era whose outlines are just beginning to appear.

By this preparation, LCN will contribute not only to the further success of your business and ours . . . but to the upspeeding of an American economy of plenty . . . plenty of jobs . . . plenty of opportunity in a truly free America.

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LCN
DOOR CLOSERS

What can go by AIR EXPRESS?

Practically anything! Huge pieces of machinery weighing many tons, for instance, can be shipped by AIR EXPRESS, *when dis-assembled and packed in smaller units.*

IF your shipment can go by rail, it can usually go by AIR EXPRESS, providing it fits into an Airline Transport (when oversized, the shipment can often be dis-assembled into smaller units).

No special packing is needed, either. In fact, the careful handling so typical of AIR EXPRESS eliminates the need for expensive cases or massive crates. Consequently, when you pack for AIR EXPRESS, *pack compactly*—thus reducing weight and shipping cost. And for fastest delivery—*ship when ready*—as early in the day as possible.

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AIR EXPRESS RATES REDUCED

As a result of the great volume of Air Express traffic created by wartime demands and the increased efficiency developed to satisfy these demands ...Air Express rates within the United States have been substantially reduced, in some instances as much as 12½%, depending on the weight of the shipment and the distance it moves. Consequently, shippers nationwide are now saving an average of 10½% on air cargo costs.

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Gets there FIRST

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Representing the AIRLINES of the United States

(Continued from page 10)

the completion of plans, and to assist in preserving intact many private engineering and architectural organizations that would otherwise be dispersed to the great detriment of the city. It is clear from the undisputed facts that the power of the Board of Estimate was wisely exercised, and were this court permitted to review such discretion—it would confirm the action taken. There is presented, however, the legal issue of constitutional infraction.

"In approaching the problem certain unmistakable signs along the road point to the correct solution. Since the organization of the City of New York in 1897, it has been a practice, when deemed advisable, to award contracts for private architectural and engineering services. The difficult architectural and engineering problems involved in the construction of public improvements demand the highest degree of specialized professional skill for their solution. The city for years has searched among those with experience and talent to meet the requirements of design and construction called for by the nature of the particular improvements under consideration. This long standing practice constitutes a practical construction of the constitutional provision dealing with civil service. Whenever the power to award such contracts has been challenged, courts have approved the practice."

The court furthermore stated that, "the award of contracts for architectural and engineering work does not constitute a method for making 'appointments' in the 'civil service' of the city. The provisions of the contracts awarded do not create any employer-employee relationship but a contractual one between an independent contractor and the City. The contracts call for specific studies, plans and specifications. The City does not control the office organizations of such firms, has nothing to do with the persons they employ, does not prescribe hours of employment, and is not their sole client."

The court concludes its opinion with the statement that, "nothing contained in the Constitution of the State of New York or in the provisions of the Civil Service law, prohibits the City of New York from awarding contracts for architectural and engineering services to private concerns in connection with the Post-War Planning Program. This court further holds that the action of the city attacked herein is in line with sound public policy and represents a wise exercise of discretion."

Running through this opinion, as in the school case opinion, there is also reference to the war emergency and the decision itself expressly sustains these awards "in connection with the post-war planning program." The text of the opinion, however, is based upon more general grounds and would seem to sustain such employment in

(Continued on page 92)

WHEN THE PEACE CONFERENCE *comes to Washington...*

...the delegates from war-blasted nations will find their faith in man's power to create a better world refreshed by the atmosphere of beauty and achievement captured in monuments to Washington, Jefferson and Lincoln, in stately administrative buildings, and the libraries, museums, archives, and galleries of art.

* * * * *

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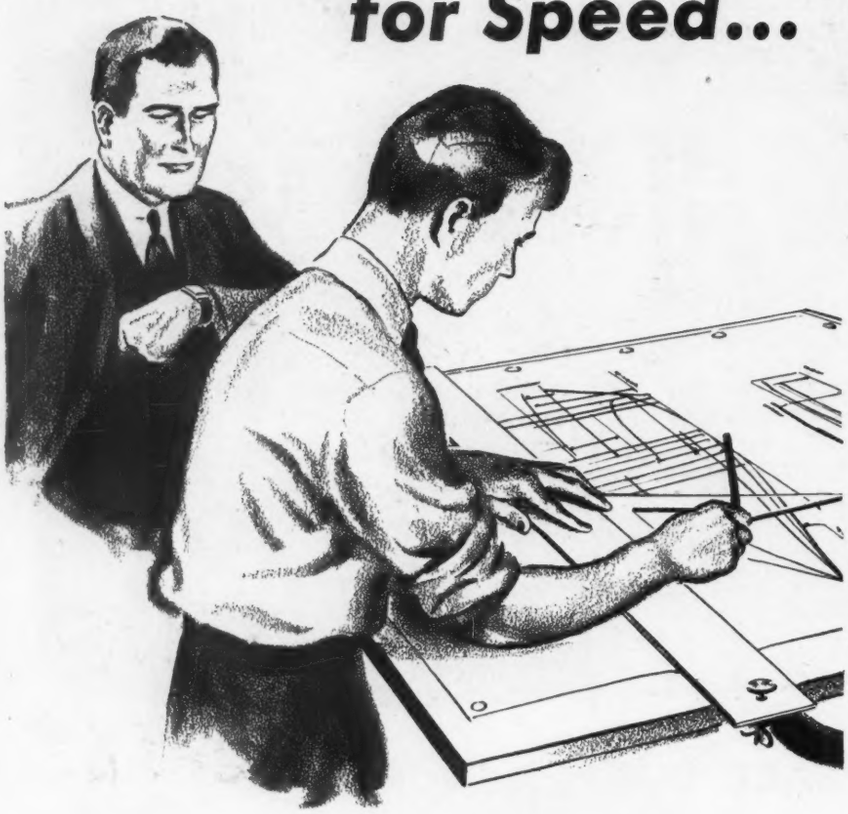

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AMERICA'S STANDARD FOR OVER 20 YEARS

(Continued from page 90)

normal times to a greater extent than does the opinion in the school case. In any event, appeals are to be expected in both litigations and the professions will continue to be represented in defense of their interests.

The Chapter initiated the defense procedure by calling together a meeting of all architects and engineers with City contracts and obtaining their authorization to proceed and their pledges for the necessary financial support. All items of litigation including the selection of attorneys and the raising of funds have been handled through the Legislative Committee of the Chapter. The firm of Eidlitz, French, and Sullivan, Esqs. was selected due to their experience in such litigations and their success in conducting a suit of a similar nature for the Chapter a few years ago.

The expense of these litigations has been considerable and this has been borne partly by the Chapter which underwrote the fees up to a stipulated amount, the balance being subscribed by those in receipt of City contracts, with an appreciable contribution from two of the engineering societies.

III

On a third front, and as an aftermath of the two adverse decisions in the courts, the avenue of legislation has been again opened up and the old bill to bar the professions from the City work was polished up and brought out for public hearing before the Committee on Civil Service Employees of the City Council. The wording of the bill is the most drastic yet composed as it definitely aims to nullify the favorable provisions of the City Charter and the favorable construction the courts have put upon it which now permits the employment by the City of private architects and engineers in a "consulting capacity," and that was construed to include full services if so engaged. The new bill attempts to nullify both these advantages.

For this hearing the Civil Service turned out in force and the Chapter was represented by its president, Mr. Robert B. O'Conner, and the joint committee of The Architects Societies of the Metropolitan Area by the Chairman of its Legislative Committee, Mr. Sidney L. Strauss. They both spoke in opposition as did a representative of the engineers, as well as representatives of the City Administration, including Commissioner Moses.

The consensus of present opinion is that the bill will go back to the Committee for an indefinite stay, though the professions must be constantly alert for whatever may happen. It is certain that the Administration as well as public-minded citizens are opposed to any attempt to tie the hands of the City and deprive it of the same freedom of contract that is enjoyed by any successful organization, be it governmental or private in character, that carries the respon-

(Continued on page 94)

Cover has been removed from this 100-ampere G Frame Nofuze "De-ion" Breaker to show how interchangeable trip unit can be removed without disturbing other parts of the mechanism.

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make NOFUZE BREAKERS adaptable for war or peace

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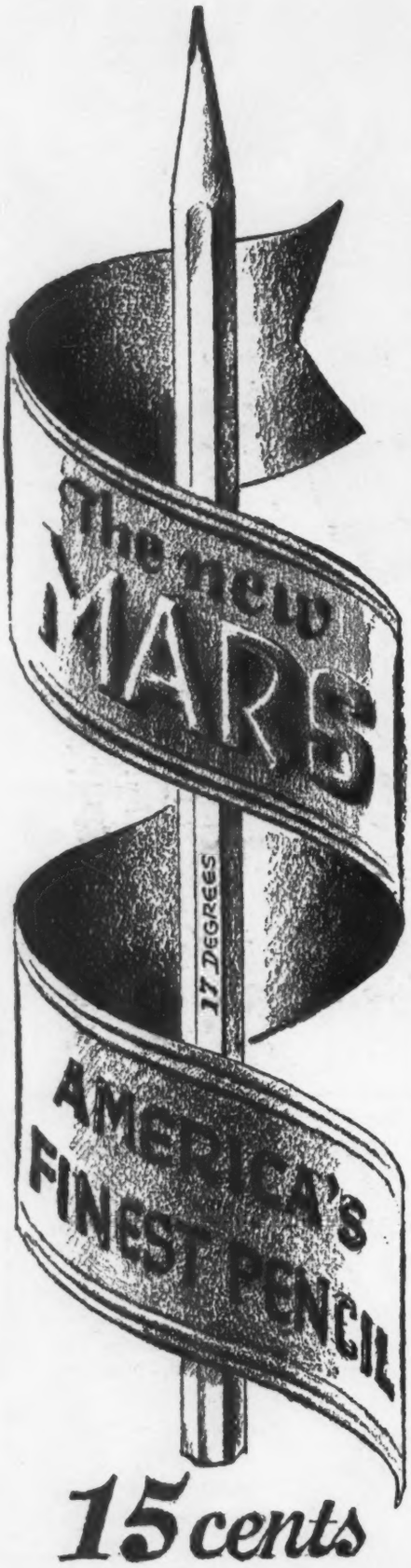

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VIEWS

(Continued from page 92)

sibility of serving its constituents to the best of its ability and with the best talent available.

Driven by these ceaseless attacks on the contract rights of the professions, the Chapter has under consideration, as a counter move to these oppressive measures, a legislative proposal of its own that aims to establish once and for all what is the true scope and limit of a governmental architectural bureau that would be fair to the Civil Service, to the professions, and to the public at large, as well as compatible with the exigencies and responsibilities of the City government.

Change of Address

E. L. ROBERTSON, A.I.A., J. Bailey Associate, announce re-opening of office at 505 Congress Building, Miami, Fla. (Also requests manufacturers' catalogs.)

HAROLD E. ATKINSON, Landscape Architect, announces the moving of his office to 10009 Lamont Ave., Cleveland, O., from 181 Yale Drive, Alexandria, Va.

Data Wanted

E. CLAUDE LOWE, Architectural Designer, 3314 Mt. Pleasant St., N.W., Washington 10, D. C. (Data and catalogs for complete A.I.A. file. Also samples. Also Don Graf sheets.)

R. DUANE CONNER, of the firm of Benham Engineering Co., 1613 N.W. 17th St., Oklahoma City 6, Okla. (Data and catalogs for complete A.I.A. file.)

HAROLD E. SNELL, Designer, Colchester, Conn. (Data and catalogs for complete A.I.A. file. Also samples.)

TRANSCONTINENTAL & WESTERN AIR, INC. Airways & Airport Engineering Dept., 10 Richards Road, Kansas City, Mo. (Data and catalogs for complete A.I.A. file. Also samples.)

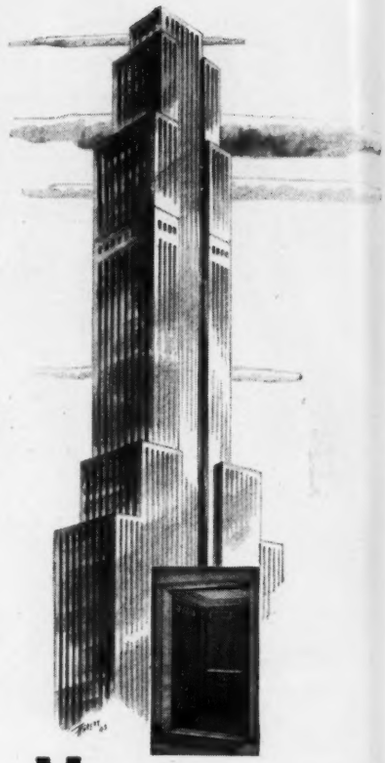
CLIFTON C. FLATHER, State of New York, Department of Education, 40 Howard St., Albany, N. Y. (Architectural, engineering, building material catalogs, and samples.)

CLARENCE R. HOPE, 3 West 26 St., Wilmington, Del. (Data and manufacturer's literature pertaining to institutional hospital work. This is for a preliminary study which will take several months. Mr. Hope will not be in a position to talk with salesmen till then.)

Instruments and Books Wanted

I. W. B. ST. J. CUMMING, Hotel Eastwood, 91 & 92, Lr. Leeson St., Stephen's Green, Dublin, Ireland. (Bruning Drafting Machine and/or data on same.)

LOUIS E. KORN, 6332 Warner Dr., Los Angeles 36, Calif. (A Copy of Ware's "Perspective".)



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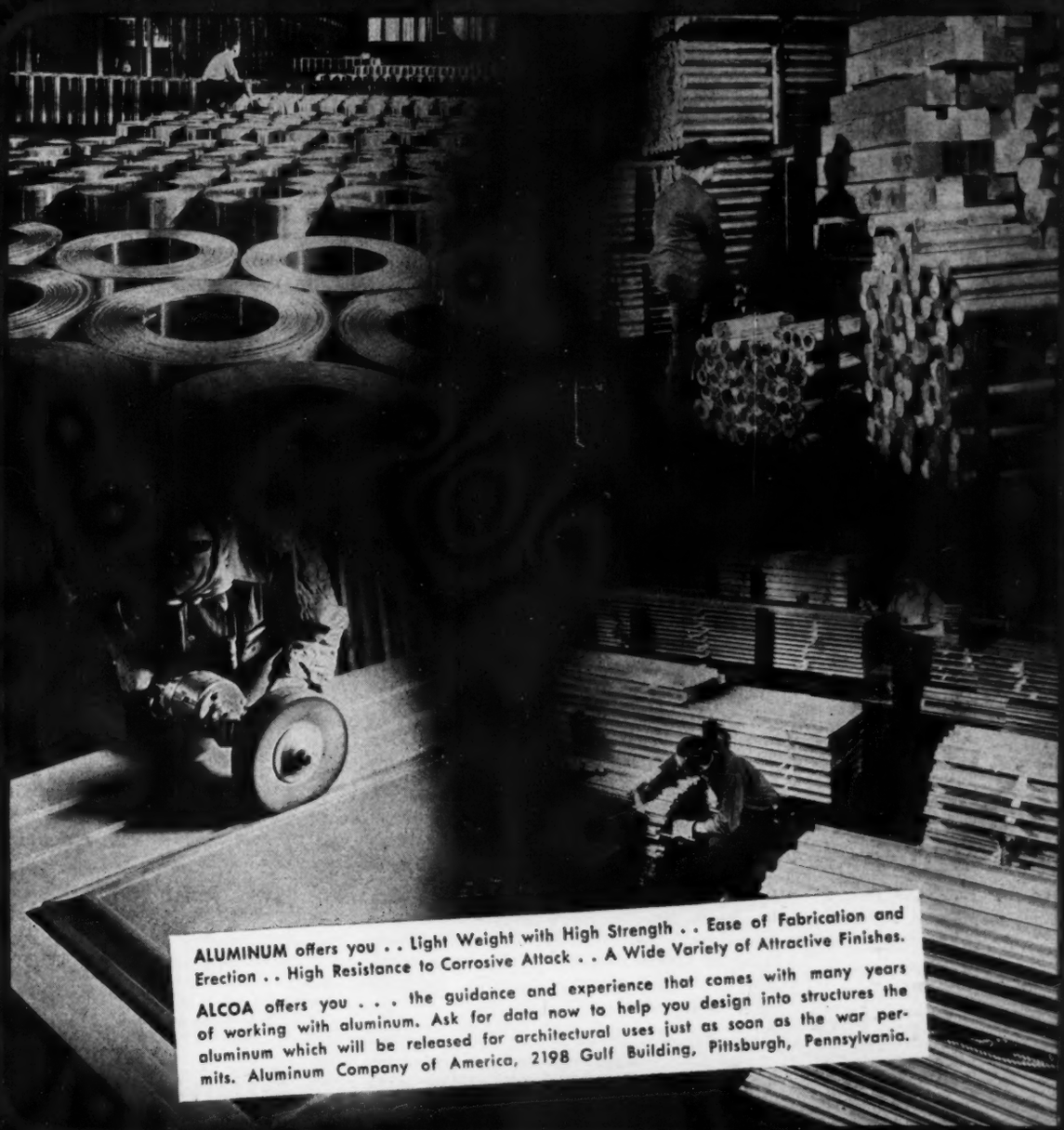

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ALCOA ALUMINUM

REVIEWS

(Continued from page 22)

greatly rusticated do not merit discussion. The issue is completed by the second prize-winning illumination contest projects. Many unnecessary details are affixed to the buildings in order to achieve sensational lighting uses.

United States

ART NEWS (July 1, 1943). Peyton Boswell, a traditional "Missourian" as is perhaps right in his position, comments with extreme distaste upon the Hirschfield show at the Museum of Modern Art and the magazine follows up later in its pages with an equally unenthusiastic article called "Tailor-Made Show Suits Nobody," extraordinary punning on a show by an amateur painter-tailor. The criticism is certainly just, though Mr. Boswell as usual indulges in overly much name calling. The same animosity felt by him, though, was certainly the experience of almost all who observed the Janus-interpreted crudities of Morris Hirschfield.

The remainder of the magazine covers carefully the newer exhibits and makes for one of the best guides obtainable, to art in New York and elsewhere.

INTERIORS (June Issue). Harry S. Pack, industrial designer, "decorated" the Pennsylvania Central Airlines offices in a clean-cut manner, though the furniture could have been more enthusiastically approached. *The Remodeled House of a Manhattan Client* counts for little by virtue of its nick-nacks and retrospective design. One of the best presentations this magazine has published is signed "Nino," and is Part Eight of *Anatomy For Decorators,* this time a year-round game room with billiard table and home-movie seat heights drawn in wonderful fashion. Other material is not outstanding.

(August Issue). As is so often the case, the meat of the issue is to be found in *Letters to the Editor.* Edith Chatterton Thomas with uncanny foresight sums up the reasons for popularity of traditional copy designs. She terms it "cheaper and ever cheaper 'traditional' furniture that is never inexpensive" and blames it all on the lack of good design education for more than the few studying to make it a career. Mrs. Thomas deserves a wholehearted response to this excellent letter.

Summing up the year's work of designers "and" architects this issue publishes interesting work by Ernst Payer, Frederick J. Kiesler, George Farkas, Richard Neutra, Morris Lapidus, Mario Corbett, and Carl Koch as well as other good and many not good works.

TECH ENGINEERING NEWS (May Issue). Massachusetts Institute of Technology, Cambridge, Massachusetts. This undergraduate publication is one of the best of its kind. Though only one article in this issue is by a student, material is well selected and make-up and photography are very good. Professor Frederick J. Adams writes of "Rehousing vs. Rehabilitation." *The Quest for Power* by a graduate of the Institute, Charles Kerr, Jr., considers the need for more power in our railroad systems and its probable influence on locomotive design. Testing and control of foundry sands have reduced the number of defective castings. Professor Peter E. Kyle discusses these changes. A study of the uses of flotation in separating-out ores is made by Curt B. Beck, '46 at M.I.T.

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Planning Bibliography

Eighth in the series of annotated bibliographies of planning literature, by Margaret Greenough King.

A Parents' Magazine Home for Better Family Living

Published by the Building Service Department, Parents' Magazine, 9 East 40th Street, New York City. This house though very poor in design is a well-meant attempt to move the public away from traditional houses. The plan is slightly more flexible

(Continued on page 98)

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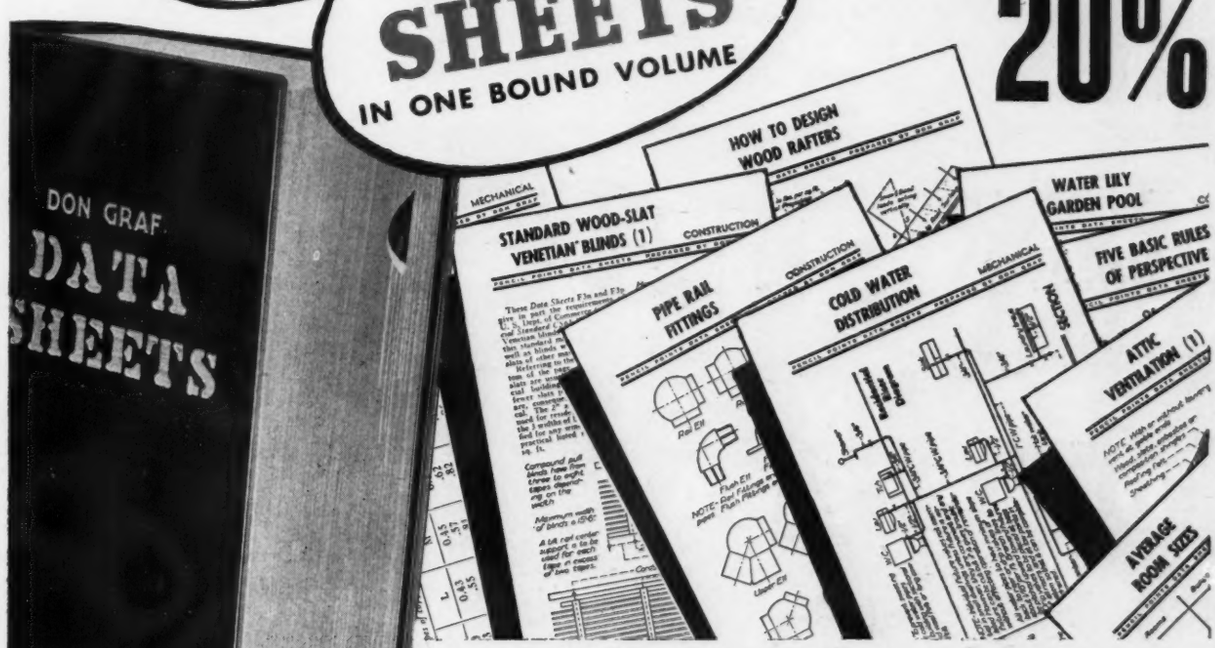

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REVIEWS

(Continued from page 96)

than the Georgian or Colonial types, but it does not do what the following quotation says it seeks to do, "Instead of fitting the family into the house, this model house is planned to fit the family." Taking a few of the basic concepts of modern house design such as cross ventilation, outdoor living space, adjustable rooms, it does just what it professes not to do, provides a standard plan for conditions of climate, site, and family character which differ for each family and cannot be covered by an "ideal" plan such as this. It fits the family into the house.

Surprizingly Walter R. Kilham and Ides van der Gracht were willing to promote such a house. Its main faults lie not in the plan which is moderately well considered, but in the unpleasing esthetics and the fact that it is meant to cover the housing problem of any "family with two children." When it comes to the "interior decoration" the pleasing interior sketches of the architects are supplemented by drawings of period designs for the different rooms.

Quite conceivably this house might educate the public toward better modern houses, but it will be unfortunate if this house itself is built for it does not go far enough away from the traditional concept to be of real value.

Parks and Recreation

Official Publication of the American Institute of Park Executives, American Park Society, American Association of Zoological Parks and Aquariums, American Association of Botanical Gardens and Arboretums. 50c. Gilmore D. Clarke, D.H.L. Dean, College of Architecture, Cornell University, writing for NEW PENCIL POINTS on *Recreation in Relation to Planning,* covers very competently the tie between city planning in general and park provision. The article is reprinted in this issue of PARKS AND RECREATION.

Canada Needs A Charter For Parks stresses the lag in recreational facilities in Canada.

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Report of the State Commissioner of Housing

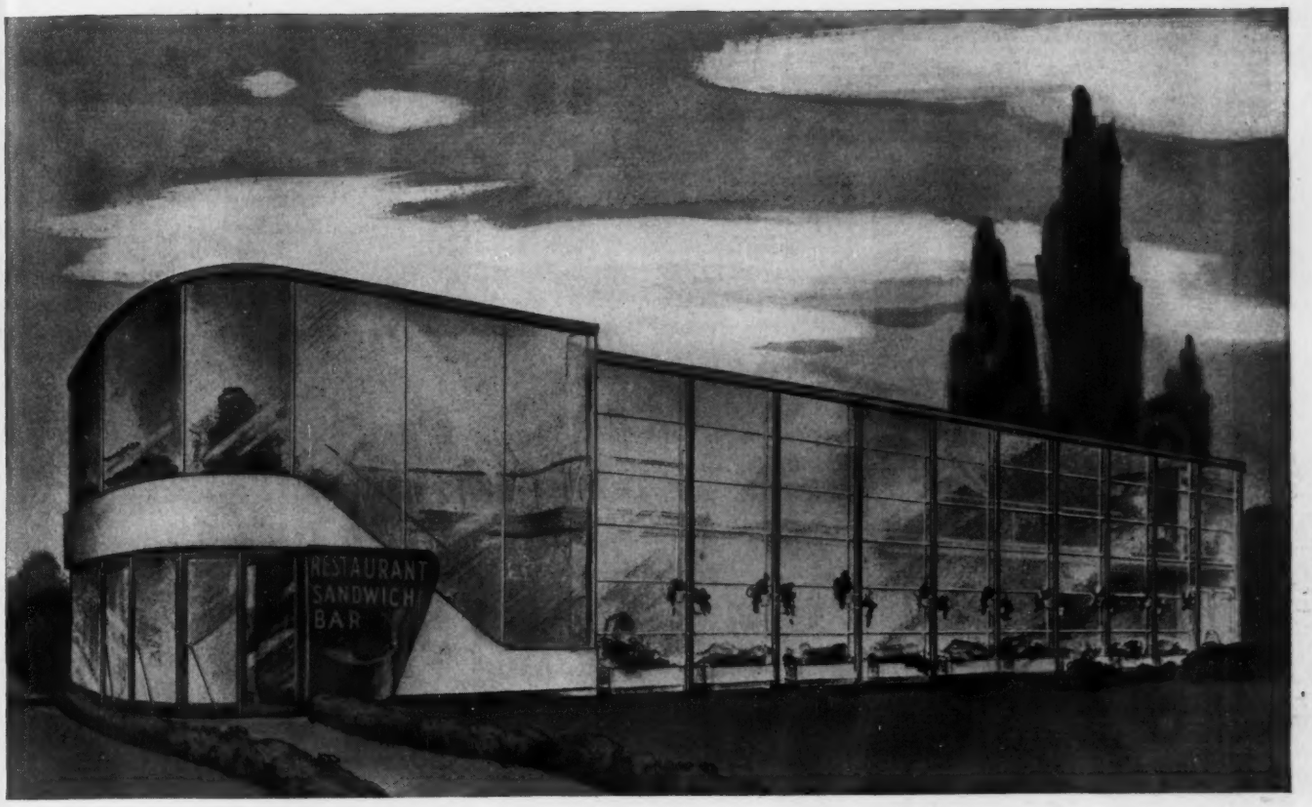
To the Governor and the Legislature of the State of New York. December 31, 1942. This report covers the war-influenced activities of the New York Commission. The program began before the war and sought homes for low income families, among the best of which is Fort Greene housing in Brooklyn, supported financially by combined city and state appropriations and planned for 3,501 families—the largest public housing project in the country. Four other projects were authorized but were not completed owing to curtailments by defense housing needs. Fortunately those in charge were farsighted enough to refuse to build so badly that they would be forced once again to clear the land of new slums. The next influence on building was the curtailment of volumes of materials and this brought about restrictions limiting building to critical areas only. Tonawanda, North Tonawanda, Niagara Falls, and Elmira were districts to which housing was allotted. The two former are complete and have used a poor set of architectural designs.

A much publicized program was designed to force families to rent rooms in critical areas. A Homes Use Program for remodeling to increase usability and capacity of existing structures was promoted. A study of postwar work is underway. *SUPPLEMENT TO THE REPORT OF THE STATE COMMISSIONER OF HOUSING to the Governor and the Legislature of the State of New York. December 31, 1942.* This supplement to the foregoing report contains statistics on Housing Company Projects, maintenance costs, operating, and vacancy losses.

16th Census of the United States 1940

Volume 2, General Characteristics. Part 1, United States Summary. United States Gov-

(Continued on page 100)



Walter Hesse, of the firm of Bloch and Hesse, well-known New York architects, is the designer of many famous restaurants and stores in New York and other eastern cities. A restaurant sandwich bar similar to the one shown above was designed by Bloch and Hesse for Gimbel Bros. New York store.

Preview of the Restaurant of the Future: with Special Attention to DINING IN AIR-CONDITIONED COMFORT

• What will the restaurant of the future be like? Here is how Walter Hesse visualizes it. "Everything will be planned with the comfort and convenience of the customer in mind. Hence, functionalism will receive chief consideration.

"Air conditioning will of course be one of the most important features. Quiet—absolutely noiseless, gentle air conditioning. Providing an invigorating, comfortable atmosphere. Without any trace of food odors. Tempting patrons to more enjoyment — happier meals and bigger checks."

Restaurateurs know from experience that air conditioning—that is dependable and efficient air conditioning—is a guarantee of getting more business—and holding it.

In the past, competition has been between the air conditioned restaurant and the restaurant without any air conditioning. With practically all restaurants of the future air conditioned, the advantage will be held by the restaurant with the better type of installation. Thus the selection of equipment takes on greater importance.

More attention will be given to cooling capacity and the location and type of grilles so that the circulation of conditioned air will be gentle and even. Smooth, silent operation without pulsation or noise will be a definite requirement.

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Air conditioning equipment offering features never before available is now being planned on the drafting boards of Carrier designers. This equipment will be ready for the restaurateurs of the future as soon as peace comes.

Architects and restaurant owners are invited to discuss now, how this improved equipment can be adapted to their post-war plans.

CARRIER CORPORATION, Syracuse, N. Y.

AIR CONDITIONING **Carrier** REFRIGERATION

REVIEWS

(Continued from page 98)

ernment Printing Office, Washington, D. C. 1943. 40c. This volume of the 1940 census on housing covers Occupancy and Tenure Status, Value of Home or Monthly Rent, Size of Household and Race of Head, Type of Structure, Exterior Material, Year Built, Conversion, State of Repair, Number of Rooms, Housing Facilities and Equipment, and Mortgage Status. It should make excellent reference for anyone interested in housing statistics for any given district since it is well indexed and should certainly be valid, though it does not contain the most recent figures on existing conditions. Statistics are first shown for the entire United States, then for regions and a summary is given for states.

Rehabilitation in Boston

The Boston City Planning Board. 1943. A progress report on reconstruction and project costs, this publication represents the efforts of a city that may more than any other need complete reconstruction if it is to continue to exist. The most important step the board has taken is its choice of a distinguished Advisory Committee, which includes the Deans of MIT and of Harvard Architectural Schools, W. R. MacCornack and Joseph Hudnut, men known nationally for their planning knowledge.

Report of the Division of Building and Construction

Of the Michigan State Administrative Board. Adrian N. Langius, Director. 1942. This well presented booklet is to be recommended to state and municipal officials all over the United States and to planners. Out of the many types of research on city planning underway at present, this report stands as one of the best in its summary of past, present, and future expenditures for "social enterprises." The Board recognizes "educational, corrective, penal, public welfare, health, and resources" as all part of that term.

Tomorrow's Town

A publication of the National Committee on the Housing Emergency, Inc. June and July, 1943. The June issue considers the problem of the one-generation house, whose purchase is to be considered exactly as is buying a newer model automobile, or a refrigerator of a better type. A compilation of views on short-term housing follows a quotation from Nathaniel Hawthorne written in 1851 in *The House of Seven Gables,"* in which he says in effect that houses should not be built for posterity any more than a man would order a leather suit in order that his grandchildren might wear it and "cut precisely the same figure in the world that he himself does." He also says: "If each generation were allowed and expected to build its own houses, that single change . . . would imply almost every reform which society is suffering for."

"The Customer" represented by D. C. Slipher of the National Homes Corporation, urges builders to consider who their customers are to be and what method of financing is to be used for such homes, and he feels that short-term homes should be largely prefabricated and have the advantage of advancing factory research and production. Elizabeth Wood, of the Chicago Housing Authority, feels that this type of housing would appeal to the transient and to those sophisticates who change their home's interior decoration every year, and so is inclined to laugh the matter off as not at all a social problem!

Miles L. Colean, of Starret Brothers and Eken, speaking of the financial aspect, says that the long-term characteristics of any financing program preclude any such housing and that technical advances to reduce costs must be made before these homes could be practicable.

The War Housing Picture is outlined and the place of private finance in the new 940,000 unit program, under the Lanham Act, is discussed.

The July issue is devoted to a study of obsolescence. *Time Zoning* to provide a set period after which a building must be torn down is explained by James Felt of James Felt and Company, and a sinking fund, regularly subscribed to by owners of the building against the given date of obsolescence, is recommended. L. Deming Tilton, Director of Planning, San Francisco,

(Continued on page 102)

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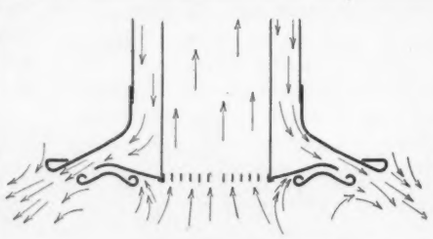

CROSS-SECTION
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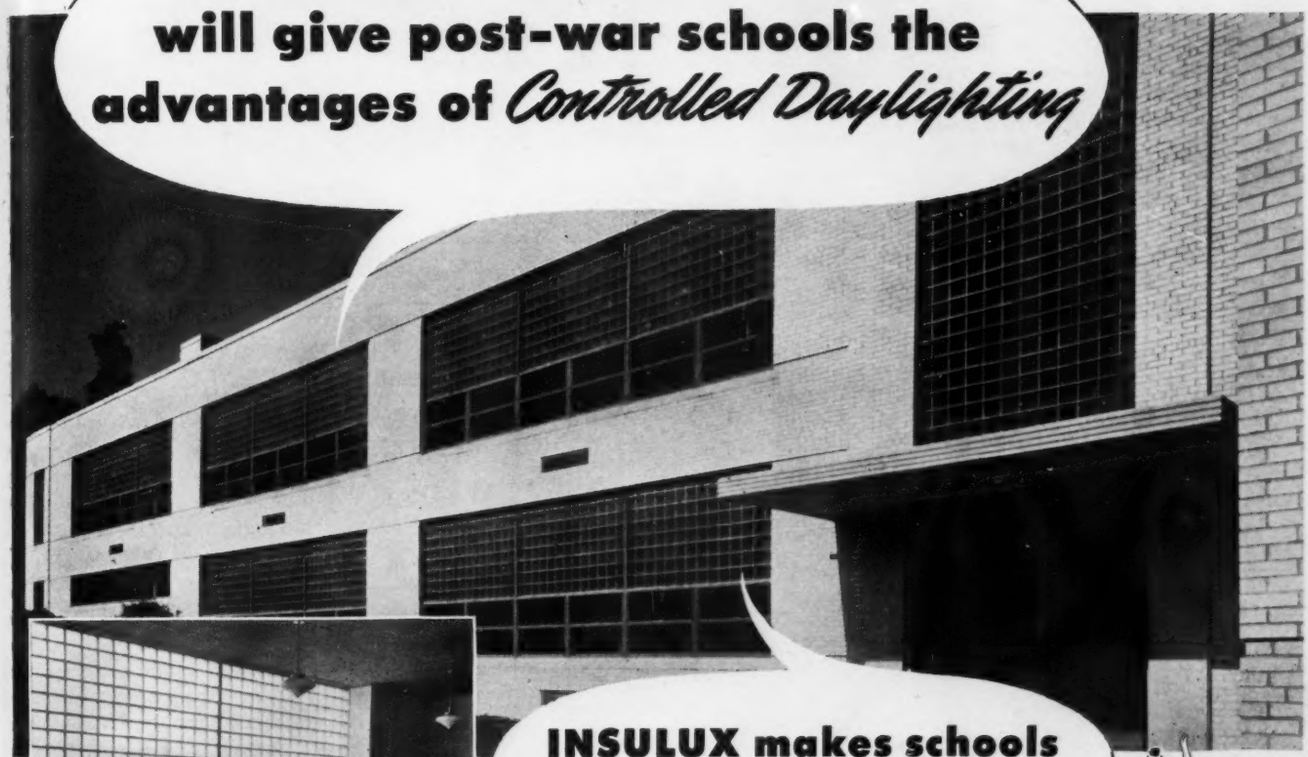
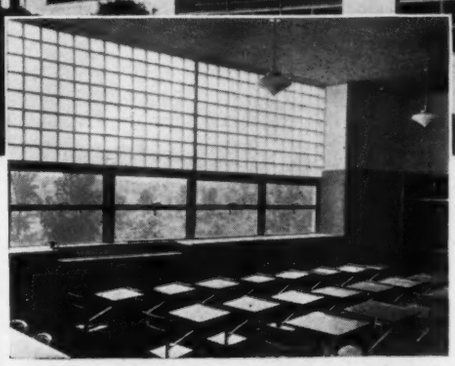
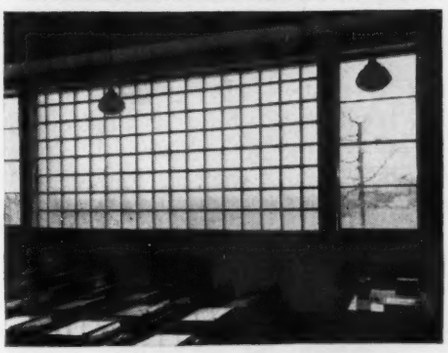
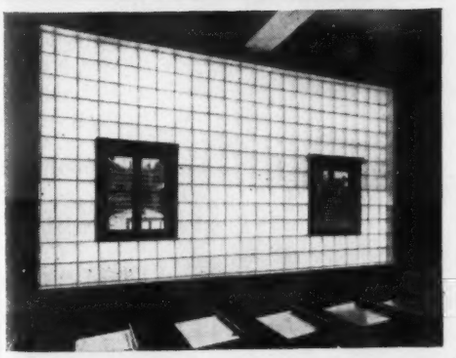








The bottom photograph shows a St. Louis, Mo., high school classroom remodeled with INSULUX. Wood sash can be replaced with metal after the war.

INSULUX makes schools easier to heat, too

INSULUX Glass Block panels provide ideal light-transmitting areas for schools. Architects who specify INSULUX Light-Directional Glass Block can control the amount and distribution of natural light entering classrooms, libraries, halls, stairways, cafeterias.

Glass Block panels can be used in various combinations with windows for ventilation and vision, as shown in the three small photographs. Probably the most ideal combination is the one with windows below the panels. Light-Directional Glass Block in the panels above the windows direct the major portion of the light for all sun angles upward to the ceiling, which reflects this light downward, deep into the room.

Walls of INSULUX Glass Block not only flood interiors with natural daylight, but provide insulation which reduces heating costs. INSULUX is easy to clean . . . highly resistant to damage . . . fireproof.

For technical data, specifications, and installation details, see our section in Sweet's Architectural Catalog, or write: INSULUX Products Division, Dept. 107, Owens-Illinois Glass Company, Toledo, Ohio.

OWENS-ILLINOIS
INSULUX
GLASS BLOCK

REVIEWS

(Continued from page 100)

agrees with the plan but believes it would have to apply to whole communities, involving government intervention. Claude L. Benner, Ph.D., lecturer at the University of Pennsylvania, suggests that ample laws exist to take care of obsolescence but that they are not in effect because of large tax assessments in the properties. James A. McLain, of the Guardian Life Insurance Company of America, challenges ably, and with appreciation of the program's merits, the regulations involved. William H. Husband, of the First Federal Savings and Loan Association, Waterbury, Connecticut, raises valid economic questions about the plan, and Henry Bruere, of the Bowery Savings Bank, though not in accord with the proposal, finds it at least to have "the virtue of a definite proposal."

Commentary on the changes in the details of the War Housing program, the shifting of volumes of building between sections, and a listing of misnomers in prefabrication terminology are included. This publication seems extremely vital.

The Best Way to Achieve Low-Cost Housing Is To Build Low-Cost Homes

National Small Homes Demonstration, Inc. 1939. Though this publication reached its "public" in 1939 it is well that it receive review today when we are on the verge of making the same mistakes which it represents.

Its introduction affirms the fact that the building industry can give you a "stock" model new home for $2500 whereas a custom-built house will cost you far more. What the building industry fails to note is that no "stock" model is livable in every situation and no building of this traditional type can be done at so low a cost without being "jerry-built."

The booklet is worth nothing constructively, but much destructively, since it leads to the belief that honest modern architecture cannot produce so charming a house so inexpensively.

If a sense of humor can be resurrected out of the horror of such sub-standard promotions it is amusing to examine the plans and discover that with one plan one may have any one of eleven types of houses, some of which are Georgian type, Cape Cod type, "modified modern," "modern aspect."

This type of propaganda is as powerful as Hitler's machinery was formerly and must be fought with fire from the side of the modern architect who would prefer not to see slum clearance necessary a few years after the investment by duped people is made in such houses.

OUR ANTI-AIRCRAFT TRACERS OVER ALGIERS — U. S. ARMY SIGNAL CORPS PHOTO

PATTERN FOR VICTORY

Von Duprin devices, too, are made on the Victory pattern. War-precious bronze and brass have been eliminated . . . yet the devices still have all their traditional character . . . their ample strength, their quick action, their sturdiness and safety. You can apply them to a building with complete assurance. They will stand up and deliver . . . they will provide sure, positive, instantaneous exit under any emergency . . . they are true Von Duprins!

Employment, the Foundation of All Social Security

H. G. Welsford, Vice President and General Manager of Dominion Engineering Works, Ltd., Montreal, Canada. This writing is one which should receive publicity among those who erroneously believe that social security compensation will solve the problems of human happiness. In itself social security tends to do just the opposite—to provide security for all on a basis other than that of personal reward for lifetime efforts. Any such system alone will lead to the rotting away of initiative and free competition which are man's way of achieving satisfaction in life. Mr. Welsford indicates that the Beveridge Report itself is based on the presumption that there will be no mass unemployment after this war.

Freeways for the Region

The Regional Planning Commission, County of Los Angeles, 1943. A well presented summary of the district's existing highways, needs for the future development a sound consideration of the value of planned decentralization and the part limited-access highways have played in New York and can play in insuring safety and better living in the county.

Public Land Acquisition For Highway Purposes

Public Roads Administration, Federal Works Agency, U. S. Printing Office, Washington, D. C. By David R. Levin. 10c. Functional obsolescence threatens the growth

(Continued on page 104)

The shell that plays ping pong inside a tank

HEAT Treating—the process of using controlled temperature to put the pierce into anti-tank gun shells, is gradually sounding the death knell of the once invincible weapon of war. The armor plate of the tank that once shed bullets like rain drops, is being drilled into destruction by modern shot. Not only is the armor being pierced, but as the projectile enters the tank it blunts its drilling nose. Then taking advantage of the very armor it has just entered, it strikes and restrikes inside walls, like a ping pong ball, as many as 500 times.

In many heat treating processes, Trane Equipment is being used to rapidly cool oils and liquids used in quenching. In so doing, Trane Products speed ordnance production and ultimate victory.

Today Trane Air Engineers are sending Trane Equipment to war on every war production front. They are utilizing heat, cold, air movement, moisture control—all the elements of weather itself to help win the battles of production.

Tomorrow these men and this equipment will again turn to peace, using the development of today for the comfort and better living of tomorrow.

TRANE

AIR

THE TRANE COMPANY LA CROSSE, WISCONSIN

TRANE COMPANY OF CANADA, LTD., TORONTO

AIR CONDITIONING · · HEAT TRANSFER · · AIR HANDLING EQUIPMENT

(Continued from page 102)

of our highway systems because of the difficulties and outrageous expense of land acquisition for this purpose. Suggestions are made as to how to implement the procedure of acquiring land for public purposes—speeded up hearings on land acquisition cases, groups condemnation, a centralized land acquisition division, the enactment of laws permitting legal entry to properties in order to survey for proposed highways. Also, it is stressed, limited-access highways should be more often used and zoning restrictions put into force to help maintain attractive highways.

Planning With You

Reprint from Architectural Forum, August 1943. This portion of the August FORUM is an attempt to simplify planning for the lay mind and as it appears in the magazine it is not strategically placed for most of the magazine's subscribers are quite well aware of far more complex questions than this represents. Its value lies in the reprinting for distribution to the public which the original has undergone.

Postwar Planning News Digest

Citizen's Housing Council of New York, 470 Fourth Avenue, New York, N. Y. July 10, 1943. 25c. In a short foreword Clarence S. Stein comments on the loss of human scale in our cities and, since this issue attempts to cover the New York City area, this comment is especially directed at the world's largest city.

World Reorganization is a rather challenging coverage of our role in the postwar world. This portion is to be recommended as a summary of our position.

The Rebuilding of Britain continues reports on the Beveridge Plan and the Uthwatt Report.

U. S. National Planning contains an excellent review of the death of the NRPB.

Planning by Business stresses cooperation between the government and business minds, which are apt to be more conscious of trends than is any other element in the country.

State Planning, New York State, is a comprehensive review of enactments and suggestions by officials and agencies which will influence postwar policies as to housing, public works and regional development.

As is usual this publication offers valuable, if not complete, surveys of the topics which it undertakes to discuss.

Abstracts of Selected Material on Postwar Housing and Urban Redevelopment

National Housing Agency, Office of the Administrator, Division of Urban Studies. This publication which appears from time to time, seeks to compile a bibliography on planning here, in England, and in Australia. When opinions are expressed, they represent those of the Agency and should furnish somewhat of a guide to the NHA attitude toward thinking in progress now, and to its probable action in the future.

When a Flying Fortress like "Gertie" comes home to roost, she eases her 100 foot wing spread into her nest quickly, easily and smoothly – thanks to Peelle, the finest name in doors.

Quickly installed to fit any opening, the NEW Peelle Plydoor is easily operated and economical, too. A new principle of wood prefabrication makes it stronger per pound than steel. So light it can be manually operated—glides backward out of the way—or rolls back like a telescope into a self-contained unit. It can be added easily to present buildings but, best of all, you can get your NEW Peelle Plydoor NOW!

Hangar doors for even the biggest Airliners are no problem when tackled by our 50 years of engineering door construction. We are proud of the approval accorded us by many of aviation's biggest establishments, as well as countless industries where the right kind of door is a vital piece of equipment. Be sure that, whether you are facing an urgent present need or a project just in the blueprint stage, the NEW Peelle Plydoor is your best answer.

Complete data showing you the experience and skill that goes into all Peelle Doors is yours for the asking!

PEELLE THE FINEST NAME IN DOORS . . .

47 Stewart Avenue • Brooklyn, N. Y.

Manufacturer's Literature

Publications mentioned here are all 8½" x 11" unless otherwise specified and will be sent, free of charge, upon request. When writing for any of the literature noted here, please mention NEW PENCIL POINTS.

Timber Connector Construction

Designers who are using the timber connector method of construction will find extremely valuable the new *Design Manual for Teco Timber Connector Construction* (Timber Engineering Company, Washington, D. C.)

The 40-page book offers complete design information covering use of Teco connectors, including data on load values, spacings, etc. Material is presented in chart form for ready use of architects and engineers, and includes such additional information as recommended cambers for standard trusses, approximate weights of various timber-connectored roof trusses, and a table of dimensional properties of American standard-sized lumber.

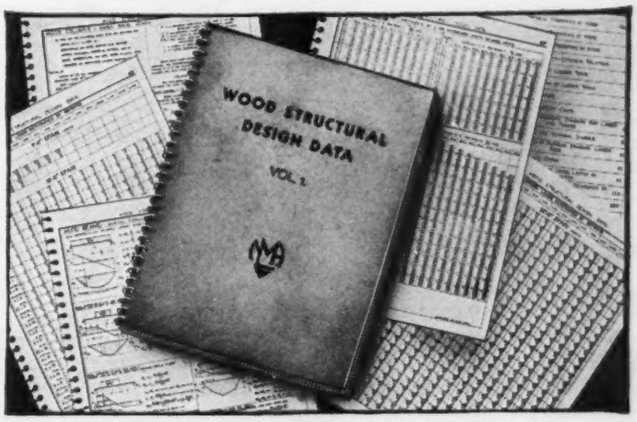
The data presented is drawn in accordance with the recent WPB *National Emergency Specifications for the Design, Fabrication, and Erection of Stress Grade Lumber and Its Fastenings* which become mandatory on November first.

(Continued on page 106)

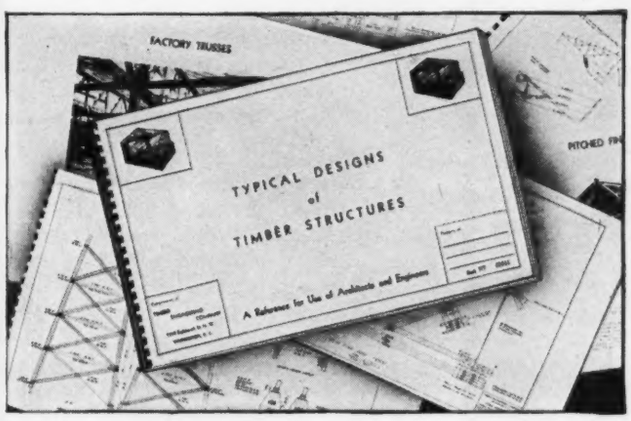
SERVICES TECO HAS FOR YOU

WHEN YOU BUILD WITH WOOD

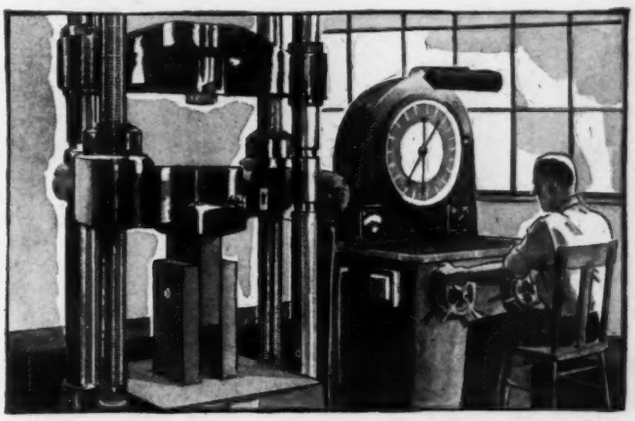
CONSULTING SERVICE. Teco maintains a staff of engineers to consult with architects and engineers on their design problems. Teco Connector distributors and fabricators in all parts of the country also render helpful services.



DESIGN DATA SERVICE. Teco has available for architects and engineers complete data on all phases of timber design, including tables and charts on timber beams, columns, floors, connector loads, bolt loads, stresses, etc.



TYPICAL DESIGN SERVICE. "Typical Designs of Timber Structures"—a 100-page book—is available to architects and engineers free upon request. Copies of several hundred other designs of typical Teco Timber Structures are also available on request.



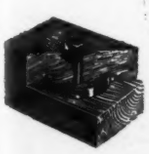
RESEARCH SERVICE. Teco conducts a continuous research program through laboratories as well as sponsoring research at outstanding engineering colleges to increase the design knowledge of timber designers.

Wood is often referred to as the *rediscovered* material, due to its development by science for plastics, laminations and heavy construction.

Engineering science that developed the Teco Connector System of timber construction is responsible for the position timber occupies as a leading heavy construction material.

The Teco timber system serves our war effort . . . it will *serve you* in peace times too.

TIMBER ENGINEERING COMPANY
—Washington—Chicago—
Minneapolis—Portland.



The **TECO** *Ring Connector spreads the load on a timber joint over practically the entire cross-section of the wood . . . brings the full structural strength of lumber into play.*

Specify
TECO
CONNECTORS
★ **TOOLS** ★

ENDORSED BY LEADING LUMBER MANUFACTURERS AND FABRICATORS

REVIEWS

(Continued from page 104)

Packaging and Handling Air Cargo
Those concerned with design of buildings and facilities for air transport will find of much interest a reprint from Automotive Engineer's Journal, *Packaging and Handling of Air Cargo,* available from the Railway Express Agency, Department of Public Relations, 230 Park Ave., New York, N. Y. It deals with one of the chief problems of air terminal design, and explores possibilities for special types of commodities.

Blueprint Machines
Peck and Harvey, 4327 Addison St., Chicago, Ill., have just issued a folder describing their table type continuous blueprint machines, which produce either blue or black-and-white prints up to 44″ wide in any length, at speeds up to 42″ per min.

Light for Tomorrow's World
The *Magazine of Light,* October, 1943 (No. 6), published by General Electric Co., Nela Park, Cleveland, Ohio, contains an interesting analysis and forecast of possibilities in lighting.

Fire Pumps
Fairbanks-Morse & Co., Chicago, Ill., have issued Bulletin 5813FS, describing their new engine-driven fire pumps. These are operated by gasoline engines to avoid the possibility of their becoming inoperative due to steam or electric power failure.

Pipe and Tube Bending Handbook
Copper and Brass Research Association, 420 Lexington Ave., New York 17, N. Y., announces its new handbook on practical methods for bending pipe and tubing of copper, brass, or related alloys. The manual contains 80 pages, is profusely illustrated, and includes complete descriptions, instructions, and tables of sizes, flow, pipe and tubing characteristics, weights, etc.

Plant Broadcasting Systems
Radio Corp. of America, Industrial Music Service, Camden, New Jersey, has just published a brochure, *Manpower, Music, and Morale,* which explains the purposes of plant broadcasting systems, outlines the type of equipment needed, and stresses the necessity of tailoring the system to the plant's needs by means of acoustical surveys, psychological surveys, and training for the operating personnel.

Hardware Designs for the Future
Under this title the Reading Hardware Corp., Reading, Penna., has published an interesting portfolio of hardware designs by prominent architects. All are unlike the standard articles available today. Many make use of plastics; some are pulls, others ball-knuckle butts. The designers include Morris Ketchum, William Hamby, Gardner A. Dailey, Burnham Hoyt, Alden Dow, and others well known in the profession.

FREE to users of Drafting Pens!

AN Esterbrook
DRAFTING PEN PRECISE TO .0001"

Test the smoothness of Esterbrook Drafting Pens, right on your own board! Just send us the make, name and number of the drafting pen you now use most—and we will mail, without charge, the corresponding pen in the Esterbrook Drafting Series. Write NOW.

THE ESTERBROOK PEN COMPANY
CAMDEN, N. J.
World's Leading Pen Makers Since 1858

HIGGINS Means Precise Performance

Make all your blue prints sharp and clear by using Higgins American India Ink for final tracings. No other ink or method can match Higgins for precise results . . . for *real* saving of time all along the line. More Higgins Drawing Ink is being used for final tracings than ever before because precise performance in the drafting room means hours saved in the production department.

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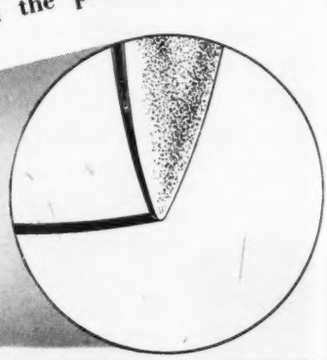
271 NINTH STREET, BROOKLYN 15, N. Y., U. S. A.



Photograph by Maynard Parker

DESIGN FOR DAYLIGHT ENGINEERING

One glance at the exterior of this home tells you that it is designed *with daylight engineering* in mind. Before you step inside you know that the rooms will be bright and cheerful . . . that there will be a distinctive air of spaciousness that only a generous use of glass can provide.

Through use of corner windows and large window areas completely around the house this home employs many of the principles of daylight engineering. Add to this exterior design the use of decorative glass in the walls inside and the home becomes flooded with welcome daylight throughout. Panel mirrors, too, materially help stimulate the effect.

Daylight engineering is one of the most important "wants" of tomorrow's home builders. And it is the one convenience that is within the means of every home. For it costs no more to build with glass than it does with any other material. High-quality Libbey·Owens·Ford Glass and Blue Ridge Decorative Glass are available for every daylight engineering need. Libbey·Owens·Ford Glass Company, 24123 Nicholas Building, Toledo 3, Ohio.

L O F

LIBBEY·OWENS·FORD

QUALITY *Flat Glass* PRODUCTS

FOR THE FIRST TIME SINCE JUNE 1942

an improved fluorescent fixture

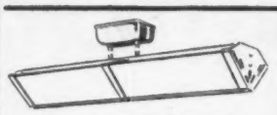
FOR DRAFTING ROOMS AND OFFICES

SYLVANIA-ENGINEERED ADAPTABILITY OF THIS NEW FIXTURE

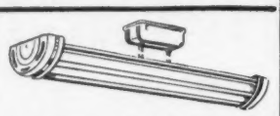
HANG IT ANY WAY YOU WANT

1. Surface Shielded

3. Surface Unshielded

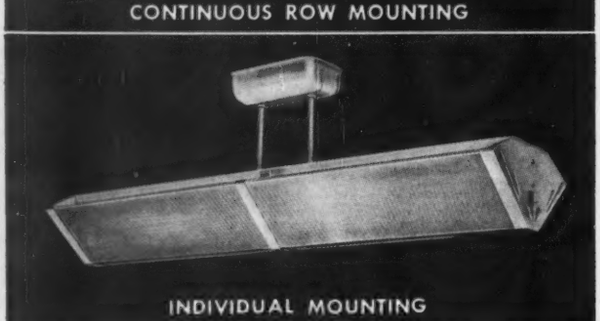


2. Pendant Shielded



4. Pendant Unshielded

CONTINUOUS ROW MOUNTING



INDIVIDUAL MOUNTING

"EVERYTHING THAT'S FINEST IN FLUORESCENT"

A RECENT WPB order makes it possible to release this new Sylvania commercial fixture, which offers you outstanding flexibility of installation.

Simple, smart, and modern in design, this new model is ideal for factory offices, drafting rooms, schools, and hospitals.

Its semi-direct light distribution provides real visual comfort through shadowless and glare-free illumination.

Light in weight, easy to install and maintain, it has a relatively small load (200 watts), which is seldom heavy enough to require the rewiring of existing circuits.

And you get a complete, pretested package of light — with 40-watt Sylvania Lamps, Mirastat Starters, and high-power-factor Dualamp auxiliary — completely wired and ready for installation.

This model — unshielded C-200R and shielded C-201R — is available to you on a priority of A-1-J or better, with specific WPB approval required for continuous row installations. It carries Underwriters' Laboratories inspection label and Sylvania's own guarantee. Write for further details, specifications, and prices.

SYLVANIA

ELECTRIC PRODUCTS INC.

Ipswich, Mass.

INCANDESCENT LAMPS, FLUORESCENT LAMPS, FIXTURES AND ACCESSORIES, RADIO TUBES, OTHER ELECTRONIC AND ELECTRICAL DEVICES

YOUR post-war clients are already looking over plans and sketches. Millions of families, according to Government figures, are planning to build, buy, remodel or improve their homes when necessary materials are again available.

The more wisely you guide their selection of materials, the more surely you can give them snug, comfortably efficient homes, fire resistant, weather-proof, good-looking—throughout the years to come.

We are advising these people to consult you in the opening sentences of the new brochure "85 Ways to Make a Better Home". Its sixteen big, colorfully illustrated pages are a veritable treasure house of suggestive information, telling your clients how they can have better looking, more durable homes.

This home builders' guide sets you up as the authority on the many applications of steel products in home building. You will want to have a copy at your elbow to show your clients the many advantages of steel as a construction material—how steel saves time in construction, especially the prefabricated steel items that can be installed so quickly and easily.

Your free copy of "85 Ways to Make a Better Home" awaits your request. Just fill in this convenient coupon and drop it in the mail today.

ONE AIM . . . VICTORY . . . *BUY BONDS*

SEND NO MONEY *It's Free*

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Please send my free copy of "85 Ways to Make a Better Home".

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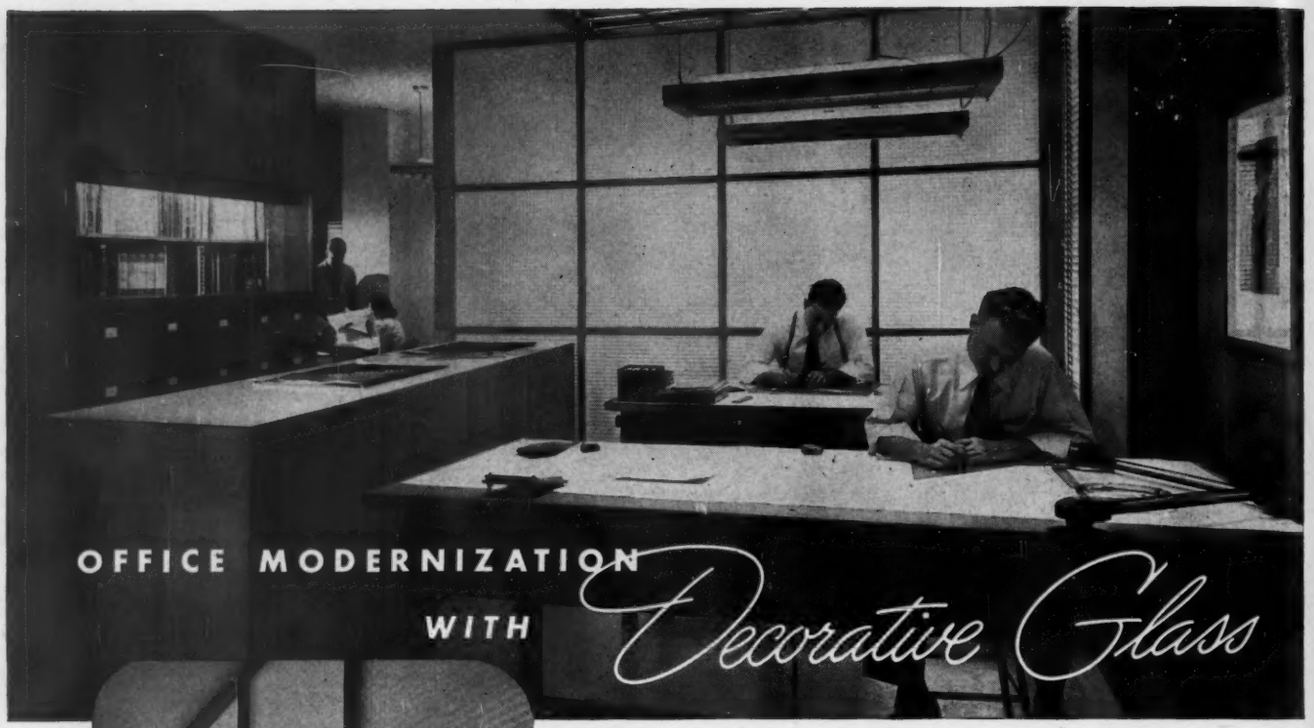
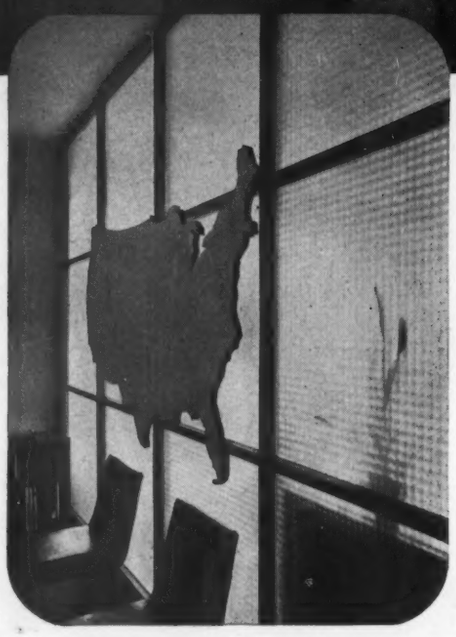
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

USS

UNITED STATES STEEL



OFFICE MODERNIZATION WITH *Decorative Glass*



When Libbey·Owens·Ford modernized its Design Department, Blue Ridge Doublex Decorative Glass was used throughout to add brightness and interest and to pass daylight from office to office.

New possibilities in office modernization and rejuvenation are offered to the architect today because of the new styling, design interest and creative effects made possible with the use of Decorative Glass patterns. These two illustrations are typical of the effects accomplished with Louvrex, Flutex, Doublex and other Blue Ridge decorative patterns now available.

Fundamentally, Blue Ridge figured glasses are interesting because of their high light transmission qualities. With them architects, decorators and designers can give full rein to their plans, knowing that they will obtain maximum daylight illumination with distinctive patterns and effects . . . and that glass never needs refinishing, and is easily maintained.

Such decorative patterns, inexpensive in themselves, are entirely suitable for both fixed and mobile partitions, decorative panels, windows and screens to hide objectionable views, transoms, doors and other installations. Decorative glasses made by Blue Ridge Glass Corporation of Kingsport, Tenn., are sold by Libbey·Owens·Ford through leading glass distributors. For prices and specific information, write the Blue Ridge Sales Division, Libbey·Owens·Ford Glass Company, 1123 Nicholas Building, Toledo 3, Ohio.

L O F

BLUE RIDGE *Decorative* GLASS

FOR SOFT, DIFFUSED LIGHT · SMART DECORATION · COMPLETE PRIVACY

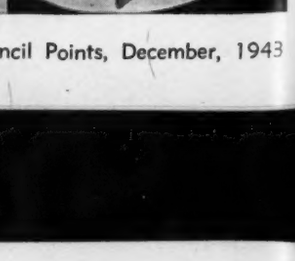
BLUE RIDGE GLASS CORP. KINGSPORT, TENN. MANUFACTURERS OF QUALITY GLASS

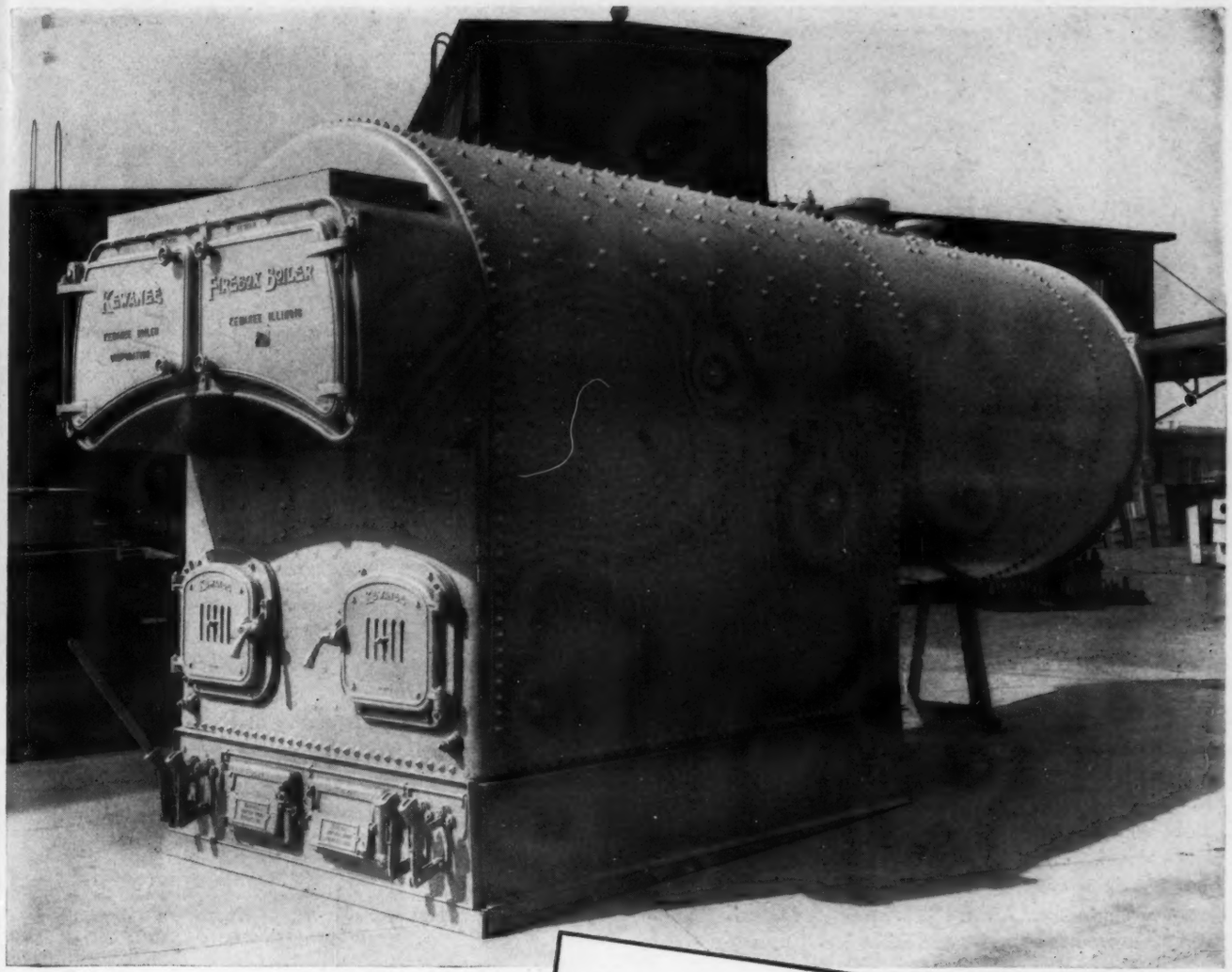
REMEMBER THE "3 EX's"

LOUVREX

FLUTEX

DOUBLEX





Kewanee Heavy Duty Riveted Firebox Boiler for Oil, Gas, and Stoker, or Hand-Fired Coal

KEWANEE
STEEL BOILERS
DO MORE WITH LESS FUEL...AND INSURE A LIFETIME OF DEPENDABILITY

EVEN a casual glance at this riveted steel Kewanee for high pressure steam indicates the unusual stamina built into it by Kewanee's skilled boilermakers.

Every characteristic which makes firebox type boilers especially adaptable for Hi-Pressure will be found in Kewanee heavy-duty series. 25 to 304 H.P...100, 125 and 150 lbs. W.P.

75 YEARS' BOILER BUILDING EXPERIENCE back of each Kewanee has developed a correctness of design and proportioning that insures all usable heat being put to work from your best available fuel, hand or mechanically fired.

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Division of AMERICAN Radiator and "Standard" Sanitary Corporation

75 YEARS BOILERMAKERS

DEMOUNTABLE HOSPITALS

...another of Douglas Fir Plywood's hundreds of war uses!

● Following close behind our soldiers on the fighting fronts are scores of demountable hospitals built of Douglas Fir Plywood by National Housing Company of Dallas, Texas. Because these sturdy, lightweight, easy-to-clean units can be quickly taken down, transported to a new location and re-erected, they are doing much to speed and facilitate the all-important work of the Medical Corps . . . It is service like this *now* that will make Douglas Fir Plywood more useful to you *after Victory* than ever before!

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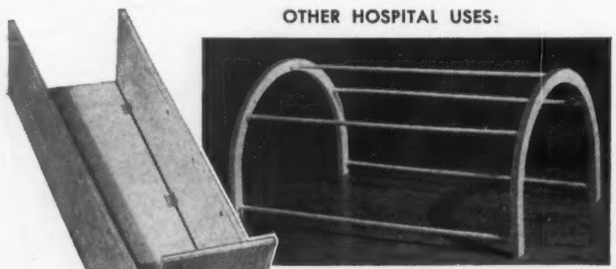
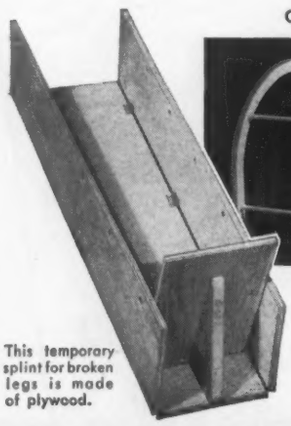


The U-shaped ends of this hospital bed cradle are sawed from durable Douglas Fir Plywood.



This temporary splint for broken legs is made of plywood.

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MADE LARGER, LIGHTER
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TO HELP SPEED VICTORY the Douglas Fir Plywood Industry is devoting its entire capacity to war production. We know this program has your approval.

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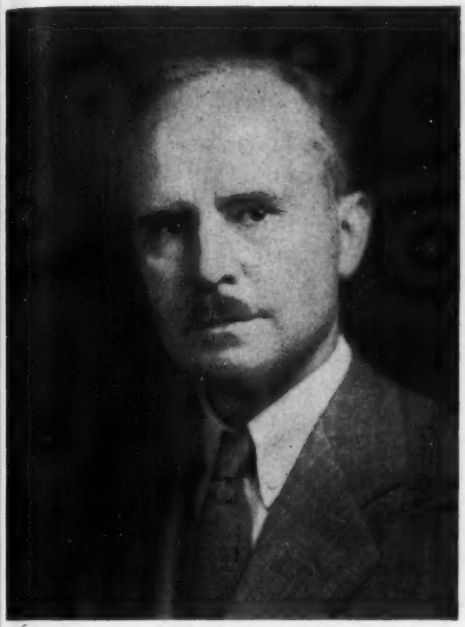
An Architect's Comment

on the functioning of

OIL BURNING SYSTEMS



J. Floyd Yewell, of New York, is well known as an architect and an architectural renderer. Among his outstanding industrial jobs, are the new plans for Walter Kidde & Company in Belleville, New Jersey; the New York, Susquehanna and Western Railroad Station in Paterson, New Jersey; and the plant for Ciba Pharmaceutical Products in Summit, New Jersey. Mr. Yewell makes the following comments on oil heating. (Among other installations of Petro equipment, he is personally acquainted with the Petro domestic burner which he used in his own home.)

"In my opinion, the economy of labor saving and the simplicity of operation which have distinguished oil heating in our prewar building will carry on in postwar construction when these attributes will be even more in demand . . . I have found that Petro Oil Burning Systems possess an attractive record for fuel and labor economy together with long term service, and my experience is fortified by the advice of engineers."

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And, since this Thermal Viscosity system automatically maintains the fuel oil at correct temperature and volume for efficient combustion, it is a definite economy factor in a season's fuel cost.

OIL IS AMMUNITION
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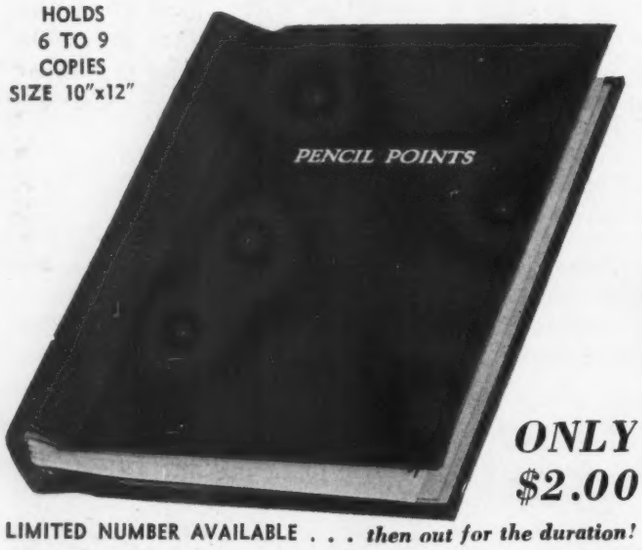

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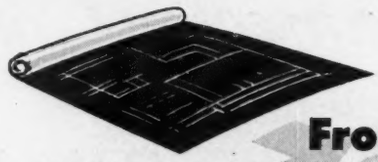

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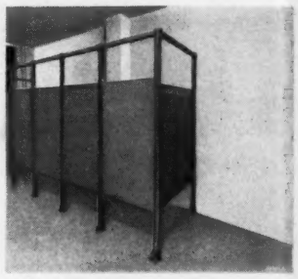

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By numbering each line of the constructed perspective and signifying its direction with arrows, the procedure and reasons for it becomes quickly apparent. To further clarify the examples, FOUR COLORS are used.

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HARDWARE for the "After the Victory" GAME ROOM

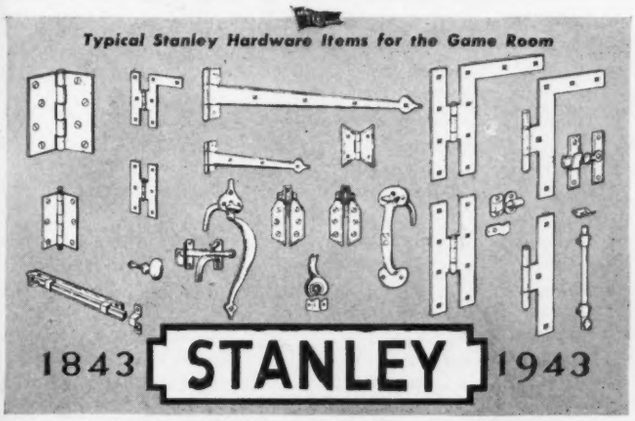
Since gas rationing changed the traveling American into a "stay-at-home" many people are studying their homes—finding improvements to make, or thinking of how they will build their new homes, once the war is over.

One of the rooms that will get careful consideration is the play-room. Here, home owners are inclined to give way to their originality. Pine paneling with built-in closets for games and sports equipment, benches with hinged tops to hold toys, cabinets for bar supplies, and other ingenious features will be developed by home-planners.

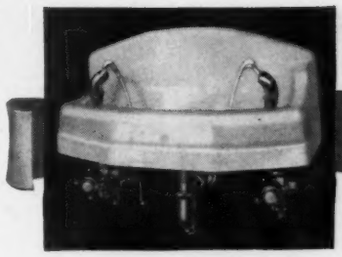
Whatever the hardware requirements of a post-war building are, STANLEY will be in a position to fill them.

Due to government restrictions on metals it is impossible to supply all civilian needs in hardware at the present time. We are certain that you and your customers understand why the present shortage exists, and realize that when our big war job is done you will have all the STANLEY hardware you need. The Stanley Works, New Britain, Connecticut.

Typical Stanley Hardware Items for the Game Room



1843 STANLEY 1943



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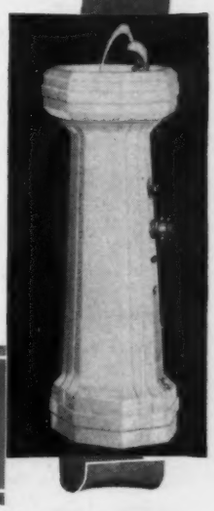

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for 53 years

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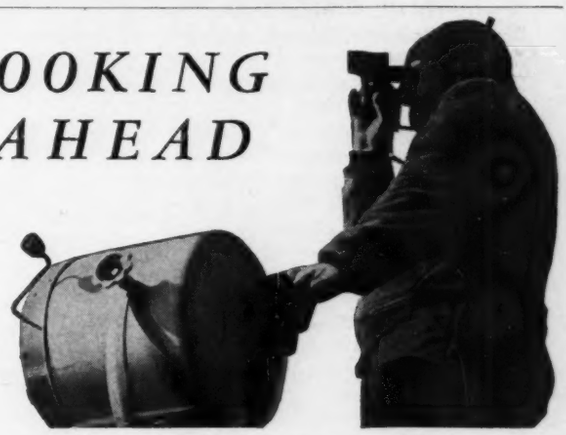

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WHEN VICTORY COMES, we'll solve yours.

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THIS?

THIS?

How do YOU picture the post-war home?

YOUR ideas on the house of the future are of tremendous importance to us. How do *you* think it will look? What materials will it use most extensively... glass blocks, steel, concrete, masonry? Will it have more exposed areas, more insulation?

The time is approaching when General Electric engineers will want to know your ideas, to help give direction to their own thinking. Before long we plan to ask your opinion on a number of questions about post-war housing. Your answers can directly influence the way *we* design our post-war heating and air conditioning equipment.

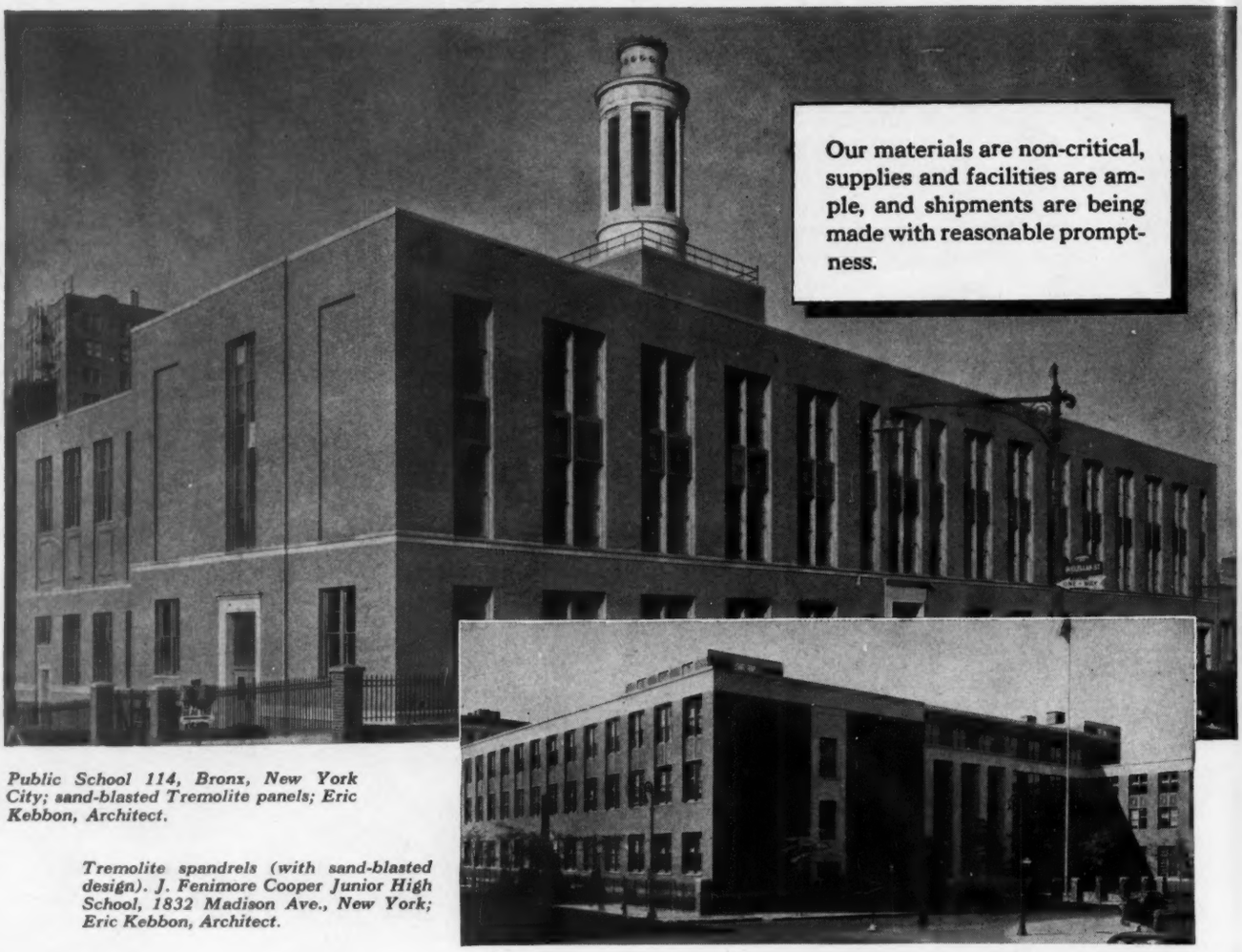
Your advice and assistance will aid us in shortening the period of post-war adjustment to new heating and air conditioning problems . . . in making available as quickly as possible an advanced line of compact, efficient equipment.

☆ BUY WAR BONDS ☆

General Electric Company, Heating and Air Conditioning Equipment Divisions, Section 35012 Bloomfield, New Jersey.

GENERAL ELECTRIC

Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA," Sunday 10 P. M., E W T, N B C . . . "THE WORLD TODAY" News, Every Weekday 6:45 P. M., E W T, C B S


Our materials are non-critical, supplies and facilities are ample, and shipments are being made with reasonable promptness.

Public School 114, Bronx, New York City; sand-blasted Tremolite panels; Eric Kebbon, Architect.

Tremolite spandrels (with sand-blasted design). J. Fenimore Cooper Junior High School, 1832 Madison Ave., New York; Eric Kebbon, Architect.

Sand-blasted Tremolite . . .

A PREVIEW OF POST-WAR PANEL TREATMENTS

In addition to their decorative value, sand-blasted Tremolite spandrels and panels, assure permanence and lasting economy. Initial cost is moderate because sections cut as thin as ⅞" are practical. The school buildings pictured above illustrate this modern treatment and the use of the interesting sand-blasted effects which will no doubt feature school, hospital and institutional building design in the post-war period. In fact, the designers of many structures of the 194x period that now dot the American scene have used Alberene *Dark Stones* for facade treatments.

• • •

A request on your business letterhead will bring you samples, conveniently boxed, showing the range of stones, including black and mottled dark blues and greens. Please address Alberene Stone Corporation of Virginia, 419 Fourth Avenue, New York 16, N. Y. Quarries and Mills at Schuyler, Virginia. Sales offices in principal cities.

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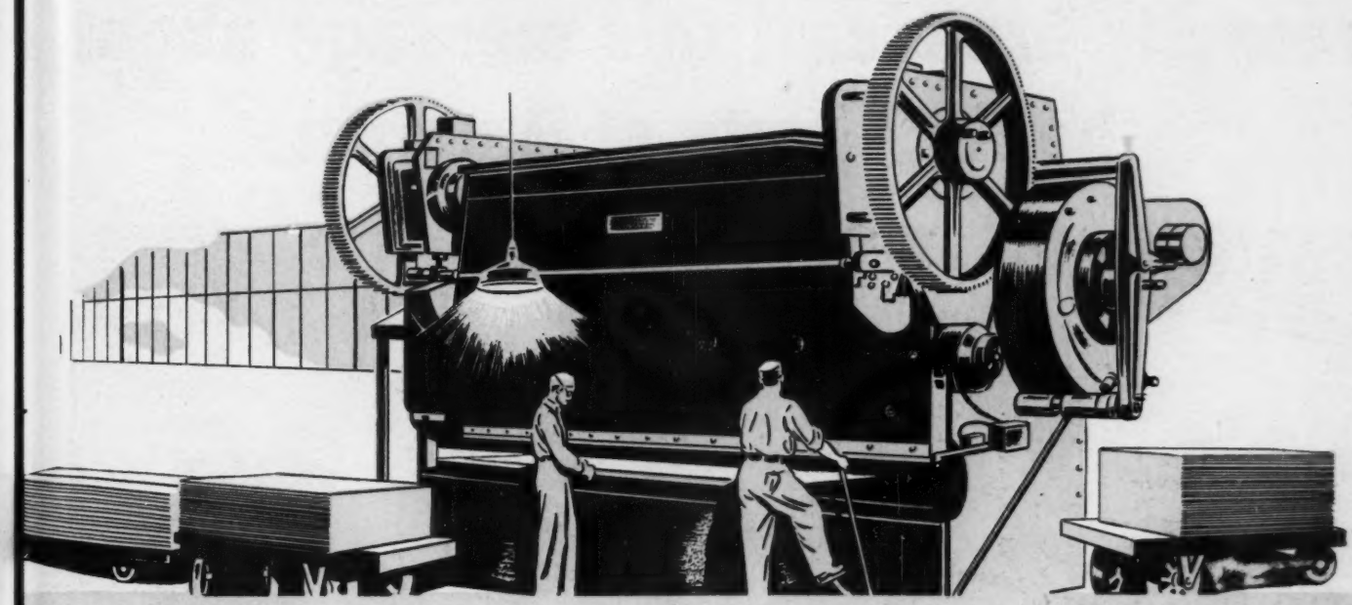
Moderate in Cost . . . Negligible in Upkeep

Truscon's facilities at present are devoted
Exclusively to the production of War Materiel . . . . .



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TRUSCON IS URGING BUSINESS LEADERS TO START POSTWAR PLANNING Now!

TRUSCON is spurring the thinking men of America into immediate realization of their postwar planning responsibilities.

Through the pages of Business Week, Modern Industry, New Pencil Points and Architectural Forum, Truscon is delivering strong, sincere messages sponsored by America's best-known business leaders.

Hundreds of thousands of executives in industry; public officials; banks, holding companies; real estate operators and owners; and others responsible for tomorrow's construction, are being urged to begin planning today with you and your men on the projects that America needs after the war.

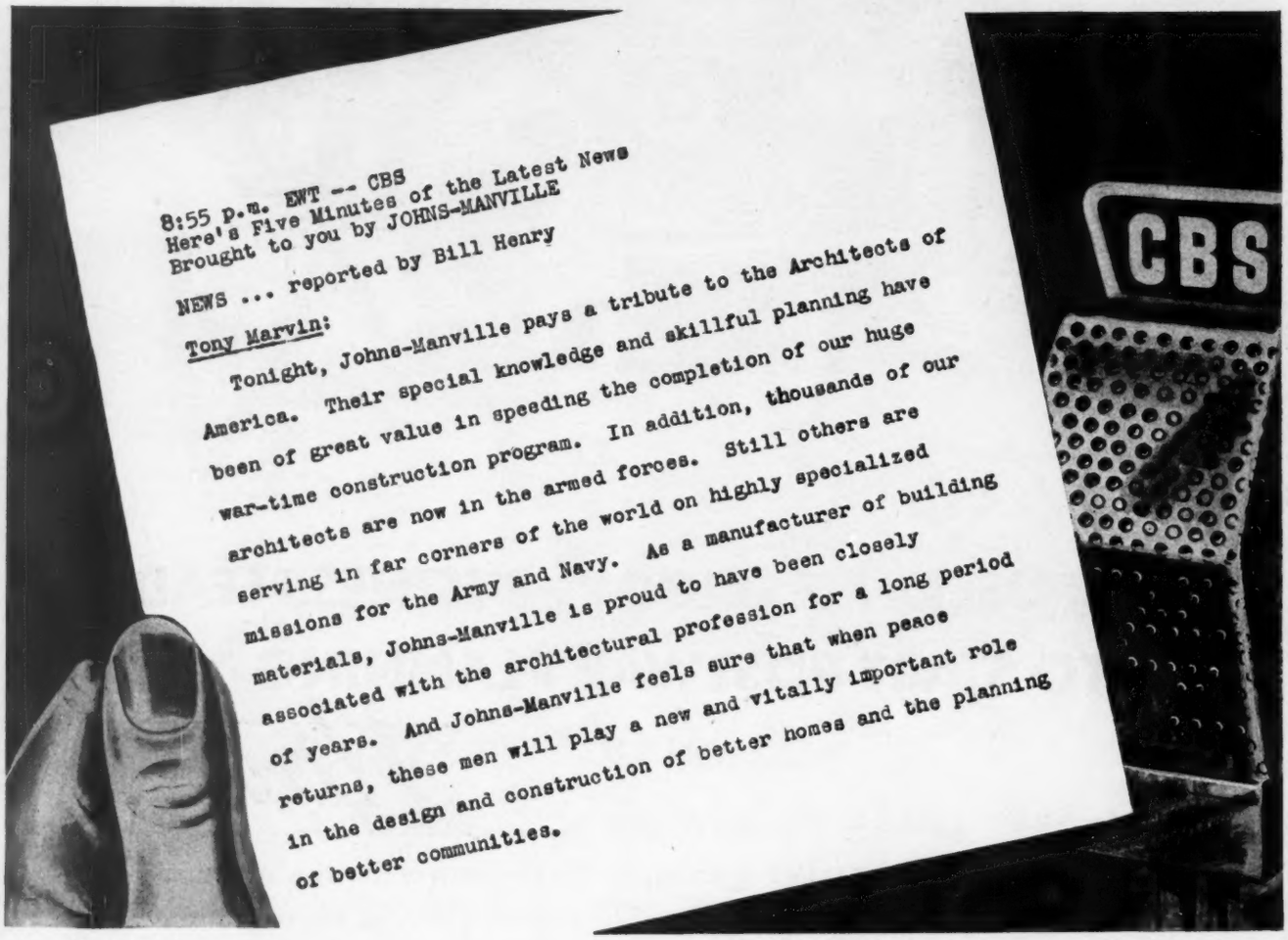
Truscon plans call for more action in building planning . . . and for new and better Truscon Steel Products to help you build these structures when the war is over.

THE PRODUCERS' COUNCIL INCORPORATED

TRUSCON STEEL COMPANY, Youngstown, Ohio

SUBSIDIARY OF REPUBLIC STEEL CORPORATION

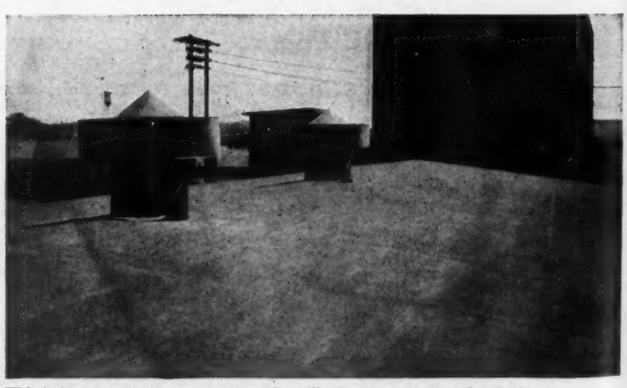
The Johns-Manville Radio Program recently broadcast this message about the Architects of America


8:55 p.m. EWT -- CBS
Here's Five Minutes of the Latest News
Brought to you by JOHNS-MANVILLE
NEWS ... reported by Bill Henry
Tony Marvin:
Tonight, Johns-Manville pays a tribute to the Architects of America. Their special knowledge and skillful planning have been of great value in speeding the completion of our huge war-time construction program. In addition, thousands of our architects are now in the armed forces. Still others are serving in far corners of the world on highly specialized missions for the Army and Navy. As a manufacturer of building materials, Johns-Manville is proud to have been closely associated with the architectural profession for a long period of years. And Johns-Manville feels sure that when peace returns, these men will play a new and vitally important role in the design and construction of better homes and the planning of better communities.
CBS

FOR NEARLY 2 YEARS Johns-Manville has talked to millions of people on the radio, five nights a week, at the best listening period of the entire 24 hours . . . 8:55 P.M., Eastern War Time. This program, 5 minutes of the latest news reported by C.B.S. correspondent, Bill Henry, is broadcast on a coast-to-coast network of the Columbia Broadcasting System.

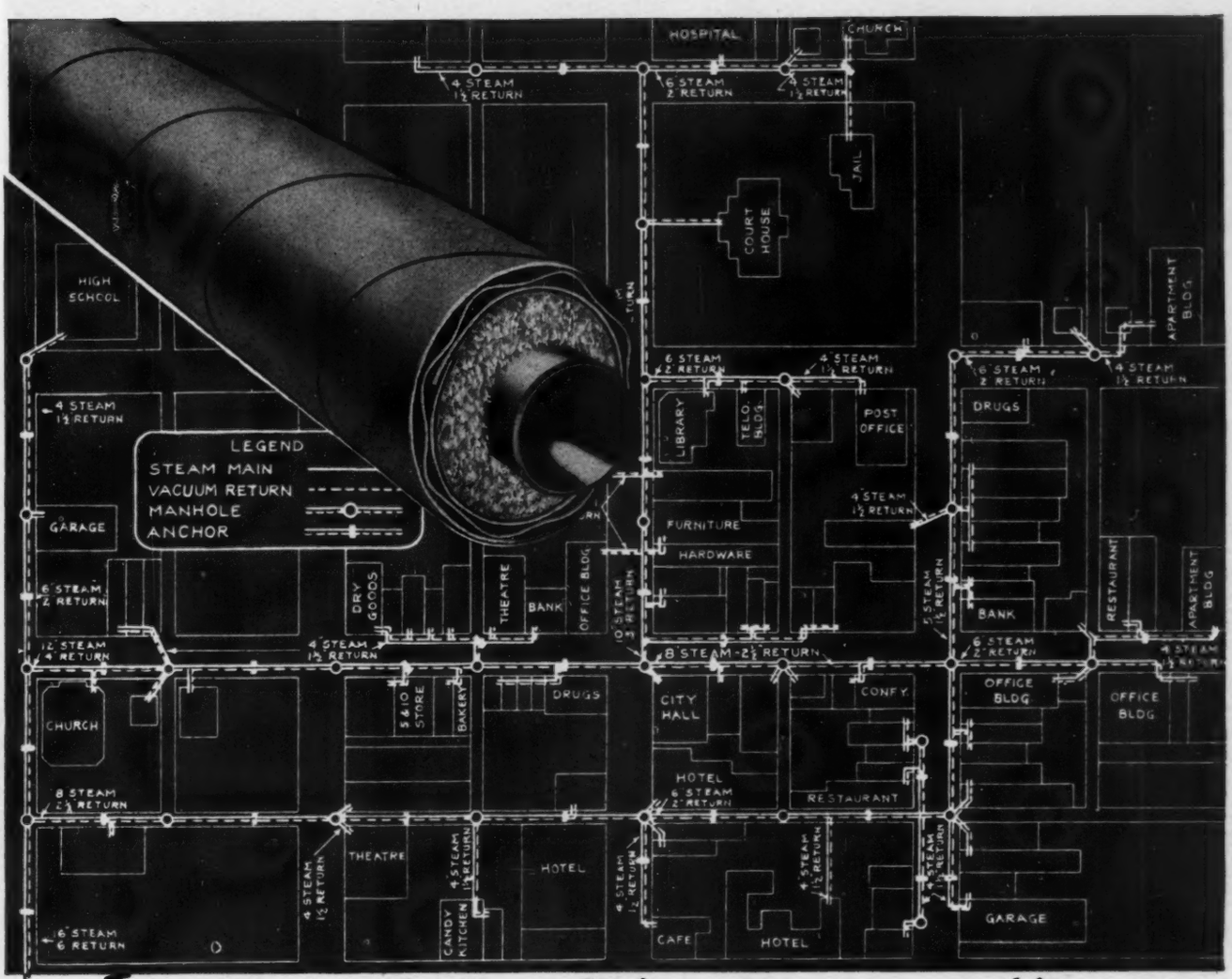
Our objective is to constantly build good-will not only for Johns-Manville but for the architects, dealers, and contractors who sell or recommend J-M products.

As an architect, we believe you will be interested in the above wartime message. It is typical of the manner in which this powerful J-M advertising campaign can serve as your spokesman during this critical period.



This is but one of the many Johns-Manville products which help architects carry out their wartime and post-war projects. It's J-M Asbestos Built-Up Roofing . . . fireproof, rotproof and long-lasting.

JOHNS-MANVILLE JM PRODUCTS **Johns-Manville** *Building Materials*



Ideal Plan For Post-War Community Heating

A CENTRAL HEATING PLANT + RIC-WIL CONDUIT

Outstanding among the advantages of community planning are the benefits gained from central heating—making it possible to purchase *heat* as a commodity like gas, electricity or city water. Ric-wiL Prefabricated Insulated Pipe Conduit provides the most easily installed, dependable, economical and efficient system of heat distribution—proven by more than a thousand miles of all types now in service.

ADVANTAGES OF CENTRAL HEATING WITH RIC-WIL PREFABRICATED CONDUIT

CONSTRUCTION ADVANTAGES:

- Conduit furnished complete with prefabricated field accessories.
- Prefabrication minimizes field work.
- Conduit is accommodated in narrow, shallow trench.
- Minimum excavation and backfill.
- Little or no interference with other construction.
- 21-ft. lengths for speedy installation.
- All-weld construction provides durable, watertight system.
- System is efficient, dependable, maintenance-free.

SERVICE ADVANTAGES:

- Savings of 15% or better in overall fuel consumption.
- Elimination of furnace or boiler tending by consumer.
- Promotes cleanliness in buildings heated.
- Provides extra room in building basements.
- Decreases fire and explosion hazard.
- Reduces smoke and soot, provides cleaner, healthier community.
- Eliminates private coal delivery and ash removal.
- Gives uniform, clean heat quickly, whenever needed.

Write for detailed information on Ric-wiL Conduit for central heat distribution.

RIC-WIL INSULATED PIPE CONDUIT SYSTEMS
THE RIC-WIL COMPANY · CLEVELAND, OHIO
AGENTS IN PRINCIPAL CITIES

BUILDERS' HARDWARE FOR THOSE EARLY POST-WAR JOBS—

You can specify it Today!

On many of the 17,450* actual V-Day building jobs now projected, Lockwood Builders' Hardware has already been specified.

Here is post-war planning with the accent on practicality . . . thanks to the foresight of American architects, and their confidence in Lockwood resources and proved engineering accomplishments.

While our men and machines are at *war*, our production plans are set to put them quickly to work for you, when *peace* says "go ahead." You can make certain now of early post-war availability of those outstanding hardware engineering developments that will best meet your V-Day requirements.

You can be ready to go, with the jobs now on your boards, by using the Lockwood special planning service, in which our engineers help you to select hardware.

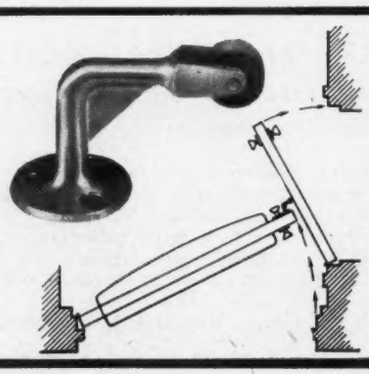
Just call in a Lockwood representative. He will explain how we can serve you now, while serving on the war-production front.

**On the basis of a partial round-up of V-Day projects, by F. W. Dodge Corporation.*

N

LOOK TO LOCKWOOD

for the practical answers to problems connected with builders' hardware. An example is shown in the unique roller bumpers designed for Washington's Hotel Statler. Closet and bath doors "step aside" when the corridor door is opened — thus avoiding damage and expensive maintenance.



Lockwood Hardware Mfg. Co.

Division of Independent Lock Co. **Fitchburg, Massachusetts**

What's Behind the Trade Mark?

QUALITY

TRADE MARK

YOUNGSTOWN

SERVICE

Progress During Post-War Reconstruction

From the records of 1919-22 may come help for our approaching V-day business problems.

After the 1918 Armistice, Youngstown's operations fell to 50%, then 33⅓% of capacity. Inventory values tumbled, money was scarce, orders almost nonexistent even at low prices.

The company faced this situation courageously, constructively. Returning soldier-employees were put to work. Warehouse additions were built. Its $20,000,000 common stock was converted to a million no-par shares, the dividend rate cut.

But the most effective step---for both immediate relief and long-term success---came in a far-sighted program of plant renovation and expansion which kept thousands at work. Expensive wartime machinery was junked, replaced by better, more costly new equipment---a new tube mill, a new plate mill, electrification of the sheet mills. Lessons learned in war production were rigorously applied ---to increase efficiency, improve products and lower costs.

Results soon began to show---a profit on late 1922 operations. America's free enterprise system had permitted the company to right itself and it faced the future confidently. With finances sound and plant modernized, Youngstown could continue to provide jobs for its employees, earn dividends for its shareholders, furnish quality products and dependable service to its customers, and above all, to build corporate strength that is helping now to sustain America in this hour of need.

Historical Series - - - No. 7

Observing Heat of Open Hearth Steel

YOUNGSTOWN

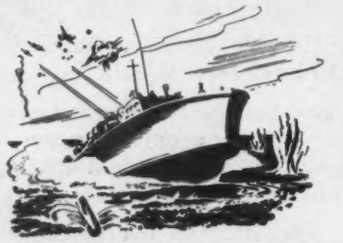
THE YOUNGSTOWN SHEET AND TUBE COMPANY

YOUNGSTOWN, OHIO

Manufacturers of

CARBON - ALLOY AND YOLOY STEELS

Pipe and Tubular Products - Sheets - Plates - Conduit - Bars - Tin Plate
Rods - Wire - Nails - Tie Plates and Spikes - Alloy and Yoloy Steels

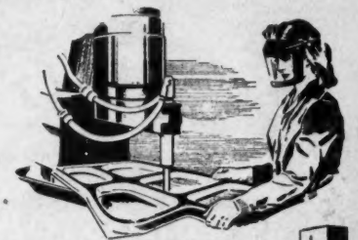


Fresh food on the high seas during long, heavy-action periods away from port is the result of compact, efficient refrigeration.

Self-Contained ¼ h.p. Refrigerating Unit

Cool, clean air protects the life of the wounded in Army hospitals. Special aircraft refrigerators safeguard serums and plasma.

Aluminum Aircraft Refrigerator



Peak welding efficiency is made possible by cooling of welding tips with water or brine held at the right temperature.

Spot Welder Tip Cooling Unit

Tool life is increased and rejections are fewer when cutting oils used in high-speed machining are properly cooled.

Refrigerating Unit

The health of our armed forces is protected by dependable refrigeration in cantonments, huts, barracks, and on ships.

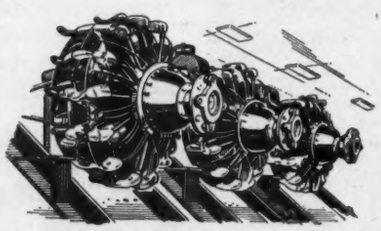
14 Cylinder Refrigerating Compressor

Super accuracy in gauge rooms is possible when the air is clean, dehumidified, and maintained at a constant temperature.

3 h.p. "Packaged" Air Conditioner

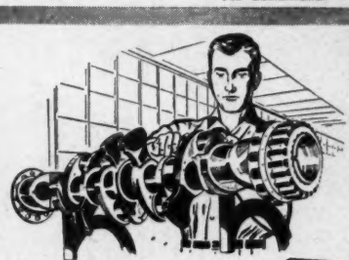
Protection in the tropics against the ravages of humid atmosphere and vermin is necessary to preserve food and equipment.

Portable Panel Refrigeration Unit



Identical performance of aircraft engines is assured by operation tests with carburetor air kept at the same temperature.

14 Cylinder Air Conditioning Compressor



Clean, dry atmosphere is vital for machining sensitive metal surfaces where a spot of rust would ruin high-precision products.

5 h.p. "Packaged" Air Conditioner

★ CHRYSLER AIRTEMP AT WAR ★

From tiny, fractional horsepower to big 75 horsepower units, Chrysler Airtemp Radial Compressors are performing a major war job on both the production and battle fronts.

The science of air control is built around the compressor. Chrysler Airtemp's *exclusive* Variable Capacity Radial Compressor provides a new efficiency and accuracy in indoor climate regulation. The radial cylinders cut in or out automatically, one at a time, to meet varying load requirements. This flexibility eliminates the peaks and valleys resulting from abrupt starting and stopping of ordinary compressors . . . holds temperature and humidity at a constant level.

Years spent in building delicate mechanisms, have developed high-precision, versatile skills at Airtemp, now devoted to war production. Backed by Chrysler Corporation research and engineering, when peace comes, these skills will again create heating, cooling and refrigeration units for homes and commercial use that will set new, high standards of efficiency and performance.

The lessons learned during peace in free competitive enterprise—freedom of the individual to produce and compete—today bring strength to a nation at war.

War Products of Chrysler Corporation

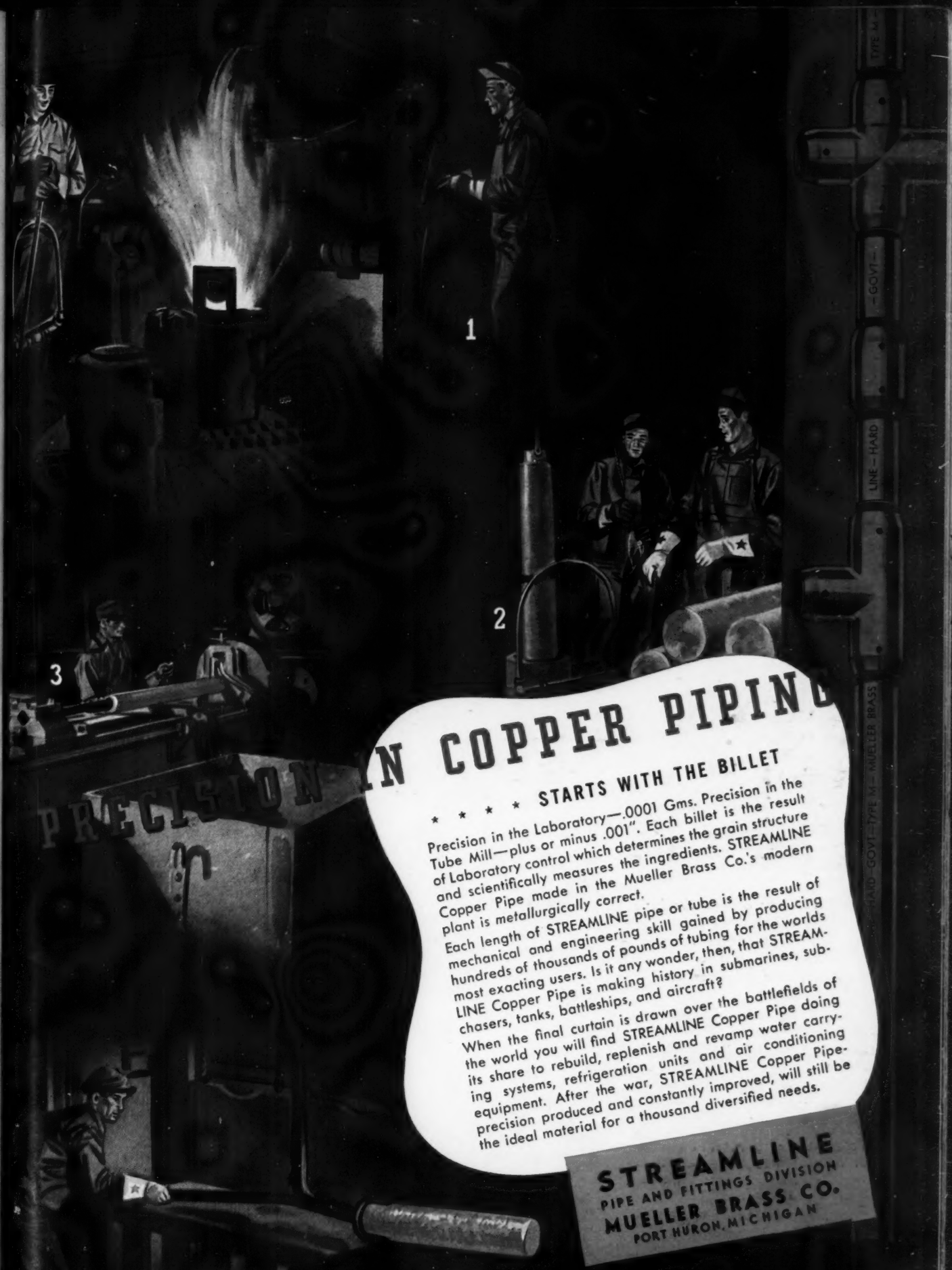
Tanks • Tank Engines • Navy Anti-Aircraft Guns • Army Anti-Aircraft Guns • Bomber Fuselage Sections • Bomber Wings • Bomb Racks • Bomb Shackles • Fighter Landing Gears • Aluminum Alloy Forgings • Aluminum Alloy Castings • High-Powered Aircraft Engines • Cycleweld Cement • Wide Variety of Ammunition • Anti-Tank Vehicles • Command Reconnaissance Cars • Troop and Cargo Motor Transports • Ambulances • Weapons Carriers • Gyro-Compasses • Navy Pontoons • Marine Tractors • Harbor Tugs • Marine and Industrial Engines • Smoke Screen Generators • Air Raid Sirens and Fire Fighting Equipment • Powdered Metal Parts • Cantonment Furnaces • Tent Heaters • Refrigeration Compressors • Field Kitchens • and Other Important War Equipment

Tune in Major Bowes every Thursday, C B S, 9 P. M., E. W. T.

Chrysler Corporation

PLYMOUTH • DODGE • DE SOTO • CHRYSLER • AIRTEMP • AMPLEX

BACK THE ATTACK—BUY WAR BONDS



N COPPER PIPIN

STARTS WITH THE BILLET

* * * *

Precision in the Laboratory—.0001 Gms. Precision in the Tube Mill—plus or minus .001". Each billet is the result of Laboratory control which determines the grain structure and scientifically measures the ingredients. STREAMLINE Copper Pipe made in the Mueller Brass Co.'s modern plant is metallurgically correct.

Each length of STREAMLINE pipe or tube is the result of mechanical and engineering skill gained by producing hundreds of thousands of pounds of tubing for the worlds most exacting users. Is it any wonder, then, that STREAMLINE Copper Pipe is making history in submarines, subchasers, tanks, battleships, and aircraft?

When the final curtain is drawn over the battlefields of the world you will find STREAMLINE Copper Pipe doing its share to rebuild, replenish and revamp water carrying systems, refrigeration units and air conditioning equipment. After the war, STREAMLINE Copper Pipe-precision produced and constantly improved, will still be the ideal material for a thousand diversified needs.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

1. Pouring the billet
2. Removing billet from chill
3. Skelping the billet
4. Billet being removed from furnace to piercer

magic...?

or

logic?

Pressure of 1700 tons changes the basic materials of natural wood — cellulose and lignin — into perhaps one of the most versatile materials serving America's war industries today. This unique material is Masonite Presdwood.**

NO MAGIC. But much logic! Simply, it is this: Wood's strength comes from its lignin-locked cellulose fiber. But in the tree the fiber lies in parallel layers, making for uneven strength. *Interlace* the fiber, lock it together with pressure in its own cement-like lignin, and the product will be strong in every direction!

The Masonite process starts by exploding hardwoods and softwoods, leaving the cellulose undamaged and the lignin intact. The resultant fibrous mixtures, of varying degrees of plasticity, are then reassembled . . . far stronger than wood . . . subjected to different heats and tremendous pressures . . . thus producing Masonite Presdwoods.

These hardboards are easily worked. They can be bent, and machined with accuracy on wood-working tools to almost any shape or contour. Their glass-like smooth surfaces provide for perfect painting with regular paints, baked-enamel finishes or lacquers.

Masonite ligno-cellulose hardboards now serve in more than 500 different war uses, releasing quantities of rubber, steel, aluminum and other strategic materials for other vital purposes. There's little left for civilian purposes today. But these versatile hardboards will be plentiful in peacetime for your buildings . . . for sturdy exteriors, walls and ceilings, furniture, cabinets, counters and hundreds of other jobs. Masonite Corporation, 111 W. Washington Street, Chicago 2, Ill.

**Trade-mark Reg. U. S. Pat. Off. "Masonite" identifies all products marketed by the Masonite Corp.*

COPYRIGHT 1943, MASONITE CORPORATION

MASONITE PRESDWOODS

It's Right MASONITE

ARMY E NAVY

THE LIGNO-CELLULOSE HARDBOARDS

EFFICIENCY FROM THE GROUND UP

There is little doubt that the high point of industrial efficiency achieved during these war years will prove an important holdover in the days of peace. Manufacturers will continue their emphasis on peak efficiency in every phase of their operations—including the very buildings in which their operations go forward.

Strip steel by Stran-Steel—expanding in scope and usefulness under the stress of war—fits ideally into this postwar picture. By virtue of its efficiency of design, economy in application and great versatility, it is destined to have an important place in the plans of designers who will help reshape industrial tomorrow.

Manufacturer of the U. S. Navy's Famous Quonset Hut

STRAN STEEL

DIVISION OF GREAT LAKES STEEL CORPORATION
1130 PENOBSCOT BUILDING, DETROIT 26, MICHIGAN

UNIT OF NATIONAL STEEL CORPORATION

...and here's why

There has been much talk about postwar planning. The public is aware of the need in general. But it's necessary to stimulate that awareness into *action.* And so Fenestra's advertising is devoted to the suggestion: "Start an Architect on a Plan Now." We are telling this message in:

NEWSWEEK	HOSPITAL PROGRESS
BETTER HOMES & GARDENS	AMERICAN BUILDER
AMERICAN SCHOOL BOARD JOURNAL	PRACTICAL BUILDER
MODERN HOSPITAL	BUILDING SUPPLY NEWS

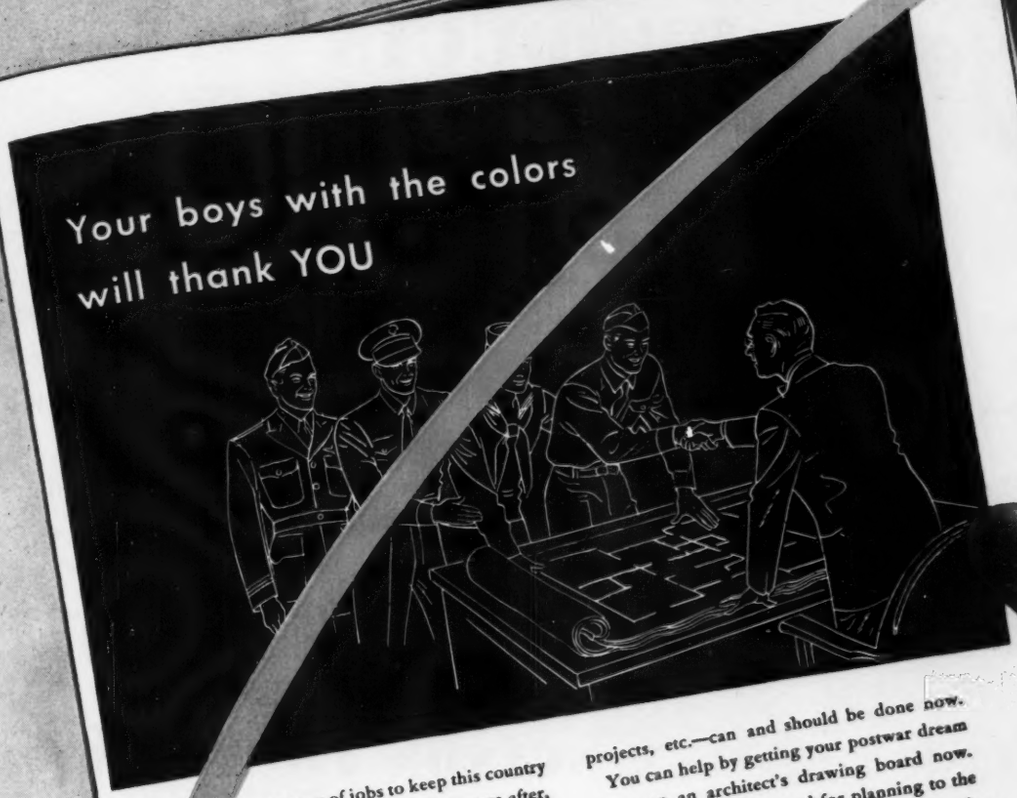
Everyone in the building industry knows that *immediate* postwar employment for millions of fighting men and war plant workers depends upon plans made well ahead.

But planning for specific projects—the kind that can be counted on for postwar jobs—can't start with you, or with us. The starting action has got to come in the minds of prospective homeowners, school and hospital officials, and businessmen.

We hope that this advertising will direct work to your drawing boards—will help the building industry, America's No. 1 employer, get ready with blueprints, to provide millions of immediate postwar jobs.

DETROIT STEEL PRODUCTS COMPANY
Now Chiefly Engaged in War Goods Manufacture
Dept. PP-12, 2269 East Grand Boulevard, Detroit 11, Mich.
Pacific Coast Plant: Oakland, California

T FEATURES THIS MESSAGE



It ake millions of jobs to keep this country
, right after the war. Not five years after,
ree. But *right after!*

Your boy who comes back from the Pacific or Africa or Europe, your brother who works in a war plant, and you yourself, won't want a long painful waiting spell after the war.

So, isn't it up to each of us to do something about those postwar jobs—NOW? There's one way, at least, you can help.

America's No. 1 industrial employer—the Building Industry—must
of postwar
ning—for homes and hospitals
schools and factories and housing
projects, etc.—can and should be done now.

You can help by getting your postwar dream home on an architect's drawing board now. Too, you can call the need for planning to the attention of your school and hospital boards and to your local, state and federal planning and governing bodies. Urge them to use available facilities of architects, engineers, contractors, builders, realtors, financing agencies, and other factors, for forward planning NOW.

DETROIT STEEL PRODUCTS COMPANY
Now Exclusively Engaged in War Goods Manufacture
Dept. NW-10 • 2270 East Grand Blvd. • Detroit 11, Mich.
Pacific Coast Plant at Oakland, California

Fenestra SUGGESTS

• DOORS • ROOF DECK • FLOOR DECK • METAL SIDING • AND OTHER BUILDING PRODUC

HERMAN NELSON PRODUCTS

in peace and at war

HERMAN NELSON products which were used to heat and ventilate all types of public, commercial and industrial buildings in times of peace are now at war. Since our country started preparations for this war, Herman Nelson Products have been installed in all types of army, navy and war industry projects. They have produced the excellent results and have given the reliable service that they always assured in peace time installations.

In addition, Herman Nelson has been developing and producing special heating and ventilating equipment for the solution of difficult logistic problems. This equipment will find new application when available for civilian use.

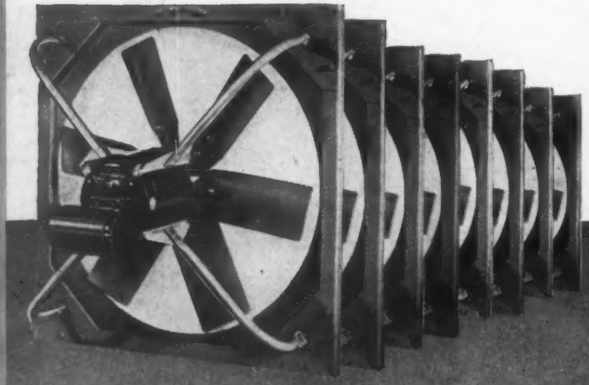
When victory has been achieved, architects, engineers and contractors can continue to look to Herman Nelson for progressively designed and well constructed heating and ventilating products.

herman nelson

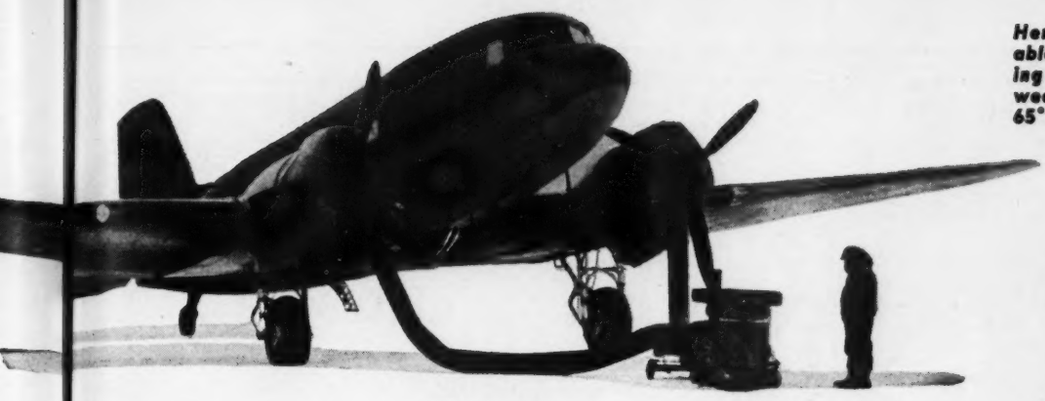
THE HERMAN NELSON CORPORATION

MANUFACTURERS OF QUALITY HEATING, VENTILATING AND AIR CONDITIONING PRODUCTS

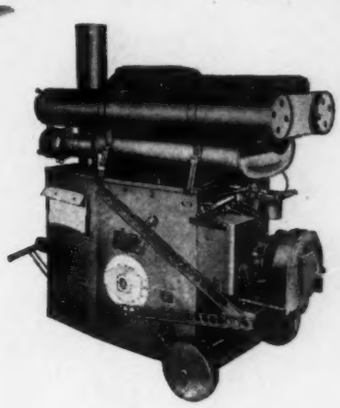
MOLINE, ILLINOIS

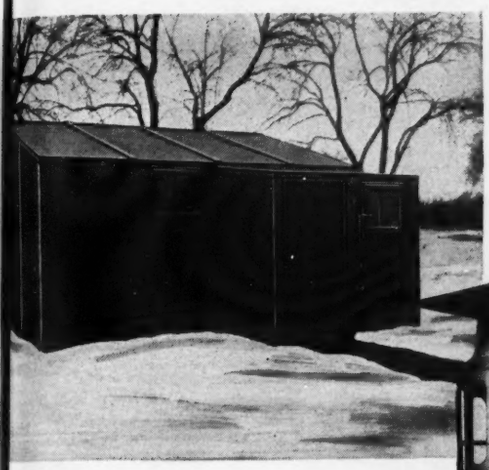


Herman Nelson Autovent Propeller Fans were used to ventilate these buildings constructed in Washington to house government workers. In peace time these fans are used to provide needed air changes for workers in many types of commercial and industrial buildings.

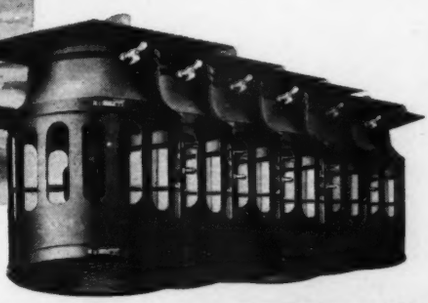


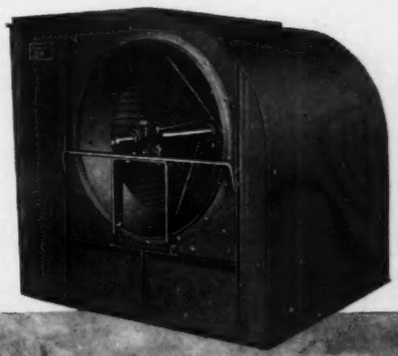
Herman Nelson developed these portable, self-powered heaters for preheating aircraft engines in severe, cold weather with temperatures as low as 65° below zero.



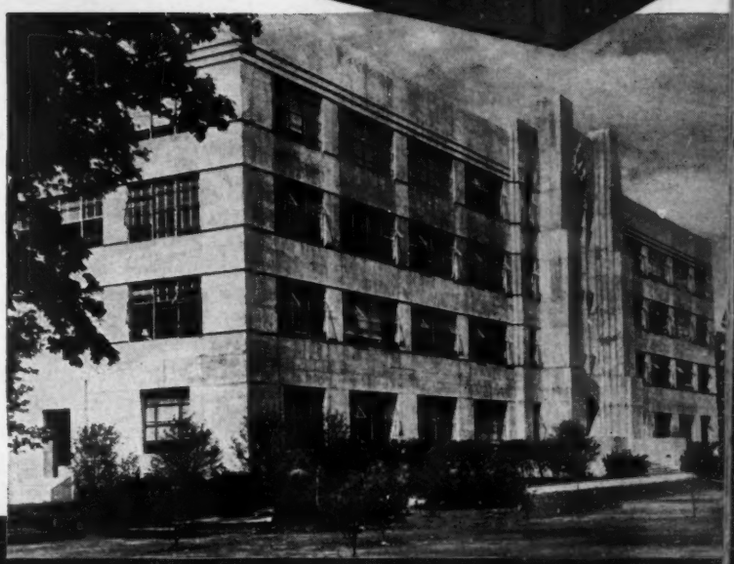


These ventilators were designed by Herman Nelson to overcome stratification in huts used by the armed forces in cold climates.

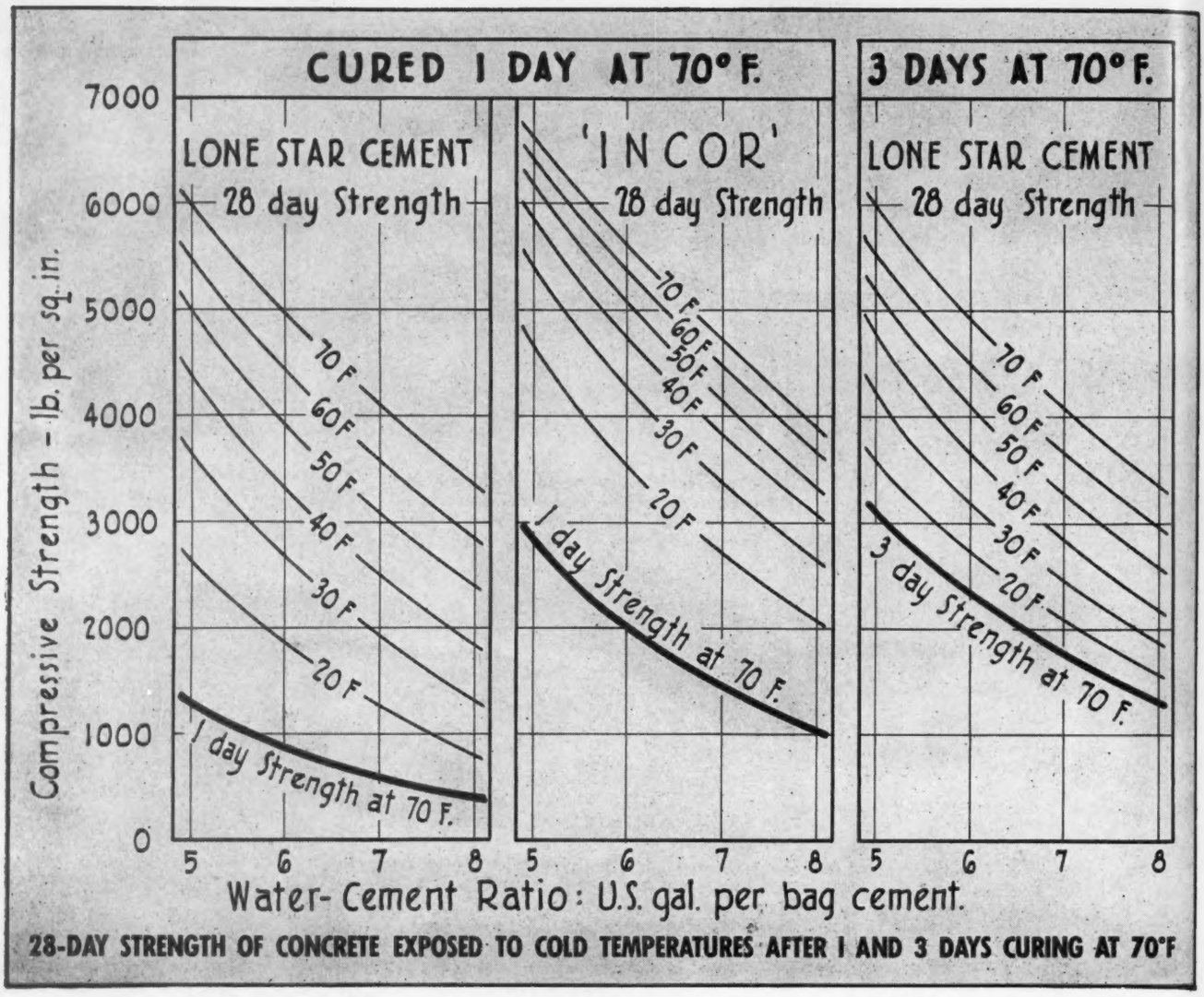




A Herman Nelson Autovent Blower provides ventilation in this Administration Building at one of our government Arsenals. In time of peace these blowers are used not only for ventilation but for many industrial process installations.



This naval station recreation building is heated with Herman Nelson hiJet Unit Heaters. After the war these heaters will provide warmth for recreational space in schools, churches, clubs and similar buildings.



28-DAY STRENGTH OF CONCRETE EXPOSED TO COLD TEMPERATURES AFTER 1 AND 3 DAYS CURING AT 70°F

'Incor' Solves Winter Problems

CUTS CONCRETING COSTS...SPEEDS JOB SCHEDULES

SPECIFY
'INCOR' 24-HOUR CEMENT
FOR

EARLIER OCCUPANCY IN
BUILDINGS OF ALL TYPES

WATERTIGHT CONCRETE—
BASEMENTS, TANKS, STUCCO, ETC.

CONCRETE FLOORS—HEAVY-DUTY,
NON-DUSTING—READY FOR
SERVICE IN 24 HOURS

LOW temperatures retard the hardening of concrete—it must be protected against freezing and heat-cured until service strong. This graph shows the effect of cold weather on 28-day strengths of concrete cured at 70°—ONE DAY FOR 'INCOR' . . . 1 and 3 days for Lone Star Cement—and then exposed to winter temperatures.

'Incor', heat-cured one day, produces 28-day strengths 25% to 30% greater than Lone Star Cement concrete heat-cured 3 days. 'Incor' makes concrete safe for winter work . . . reduces freezing risk . : : saves at least 2 days heat-curing on each pour . . . speeds job schedules. Save time, money, worry . . . keep job speed up and job costs down . . . specify 'Incor'* 24-Hour Cement on cold weather work.

Continuous research in Lone Star Cement Research Laboratories provides valuable performance data. We shall be glad to furnish specific information on request.

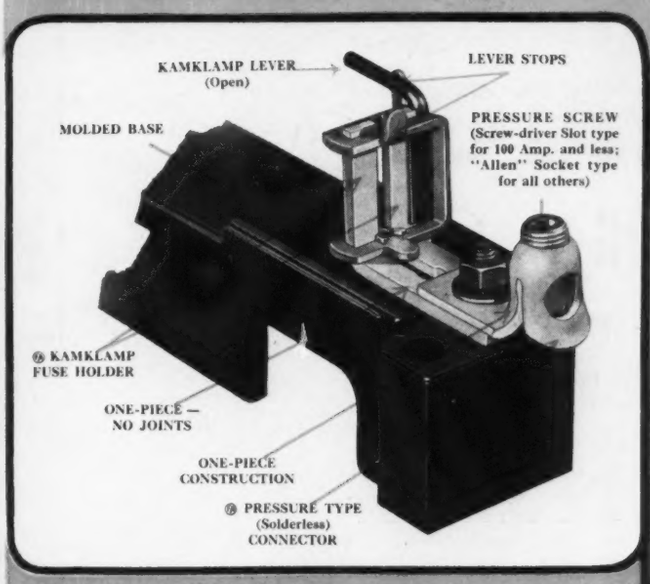
*Reg. U.S. Pat. Off.

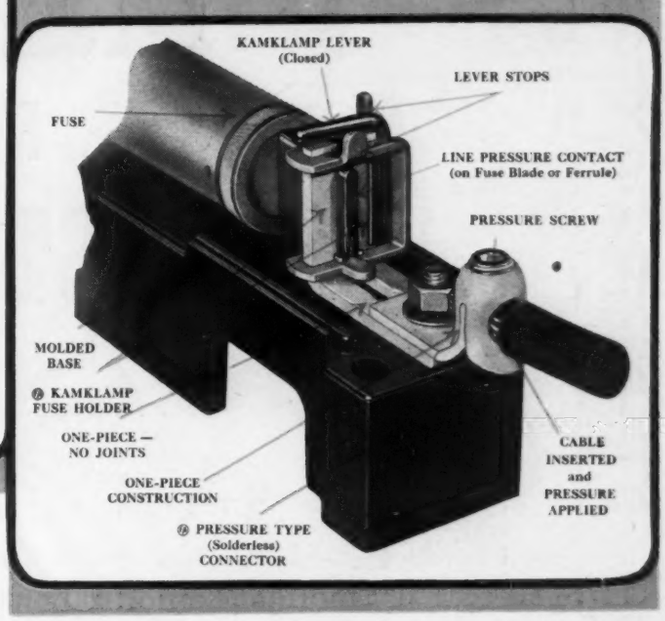
LONE STAR CEMENT CORPORATION

Offices: ALBANY · BIRMINGHAM · BOSTON · CHICAGO · DALLAS · HOUSTON · INDIANAPOLIS · JACKSON, MISS.
KANSAS CITY, MO. · NEW ORLEANS · NEW YORK · NORFOLK · PHILADELPHIA · ST. LOUIS · WASHINGTON, D. C.

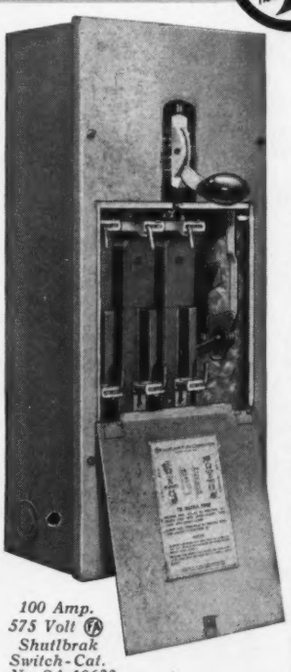
LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 25-MILLION BARRELS ANNUAL CAPACITY

• a Tightly held Fuse means A MORE PERFECT CONNECTION





THE INGENIOUSLY DESIGNED Ⓐ KAMKLAMP FUSEHOLDERS ON FA TRADE MARK SHUTLBRAK *Switches*



100 Amp. 575 Volt Ⓐ Shutlbrak Switch-Cat. No. SA-10633

MAINTENANCE NOTE

All electro-mechanical apparatus requires intelligent maintenance to produce the most satisfactory service You will find helpful our free booklets on "Maintenance."

clamp the fuses tight. Insert the fuse —turn the lever—and you have a copper-to-copper connection under strong and continuous pressure.

Convenient, too, are the Ⓐ Pressure Type (Solderless) Connectors, which make possible quick, sure connections with both line and load wires or cables—connections which will not "ease up" or become loose.

Because of these and other outstanding advantages, plants producing war materials have purchased thousands of these switches. Some are used singly—others are banked in groups — or assembled in well-designed switchboards or panelboards. Still others are installed as plugin units for Ⓐ Busduct.

But wherever and however used, this heavy duty industrial switch is giving efficient, dependable service —on motor circuits—at service entrance—and on installations requiring an operating switch.

Ⓐ Shutlbrak Switches are available for both surface and flush mounting. Installation and connection are expedited by the ample wiring space at top, bottom and at rear of the switching mechanism, and by the conveniently placed knockouts.

Capacities: 30 to 1200 amperes, inclusive, for 250 volts AC or DC, and 575 volts AC, in 2, 3 and 4 pole types. Approved by Underwriters' Laboratories, Inc.

For Detailed Information

and suggested specifications for Ⓐ Shutlbrak Switches, Panelboards and Switchboards, write for Bulletin No. 70 . . . Frank Adam Electric Co., Box 357, St. Louis, Mo.

THE SIGN OF A FA 1001 BETTER JOB
Frank Adam
ELECTRICAL PRODUCTS
for War Industry
FRANK ADAM ELECTRIC CO.
ST. LOUIS, MO. U.S.A.

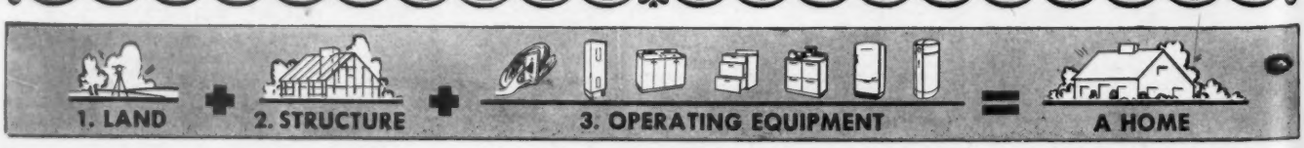
MEMO
FOR
POST WAR
PLANNING

Household operating and upkeep expenses come out of the same pocketbook as mortgage amortization payments. High-quality equipment, as supplied by General Electric, usually reduces monthly operating bills more than it increases monthly payments on the house . . . so actually it costs less to live better.

Remember, General Electric high-quality equipment will best serve the interests of your after-Victory clients or customers.

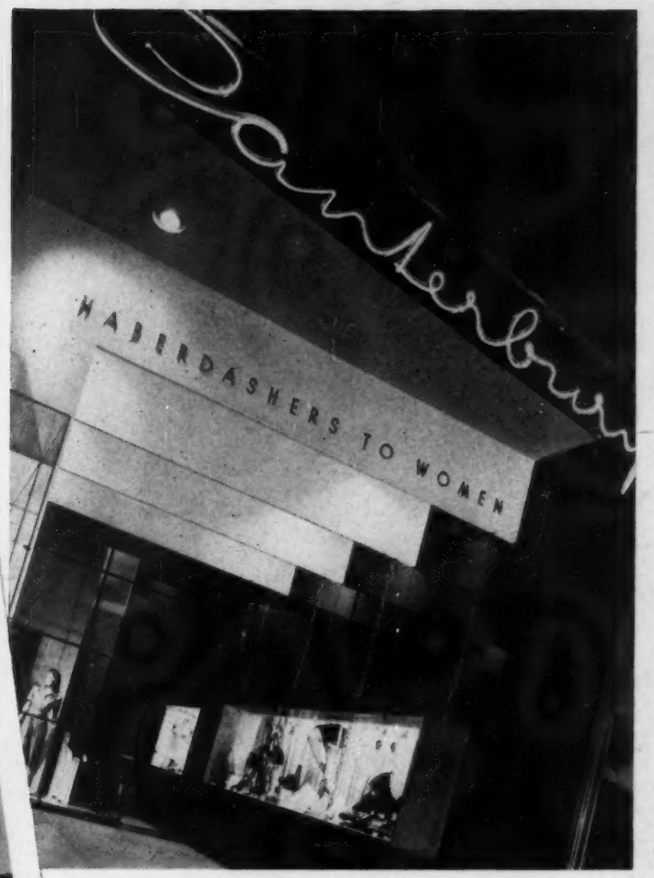
GENERAL ELECTRIC

Home Bureau Bridgeport, Conn.

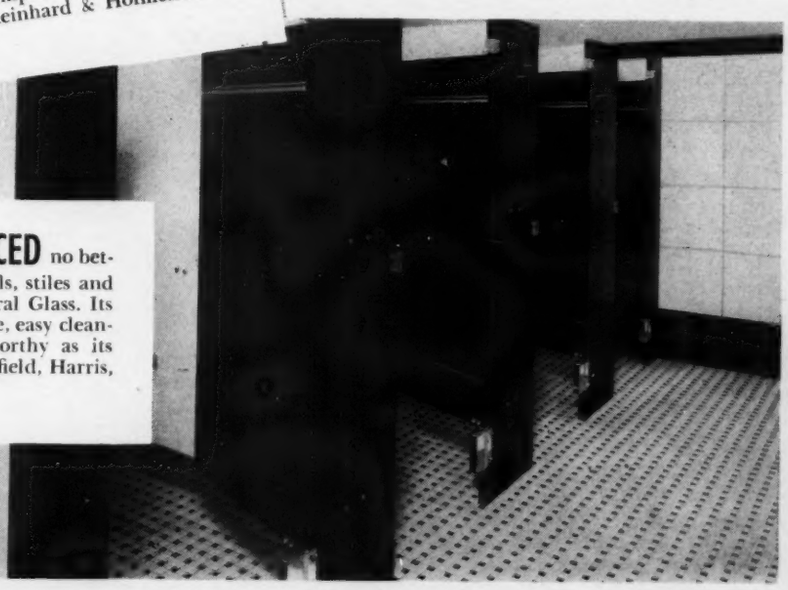


NEWS ABOUT GLASS from "Pittsburgh"

TRANSPARENT STAIR RAILS of Herculite Plate Glass offer new design possibilities both in public building and residential interiors. Herculite Glass is tempered to give it approximately 4 times the strength and 6 times the impact resistance of normal plate glass. Architects: Reinhard & Hofmeister and Harrison & Fouilhoux.



FOR YOUR STORE FRONT FILE. The design possibilities of glass in store front work are well illustrated by this handsome Pittco Store Front, designed by Gruenbaum and Krummeck. When building restrictions are lifted, Pittco Products will serve you better than ever in the widespread store modernization which is expected.



AMERICA HAS PRODUCED no better material for toilet room walls, stiles and partitions than Carrara Structural Glass. Its practical qualities of permanence, easy cleaning and strength are as noteworthy as its polished beauty. Architects: Garfield, Harris, Robinson & Schafer.

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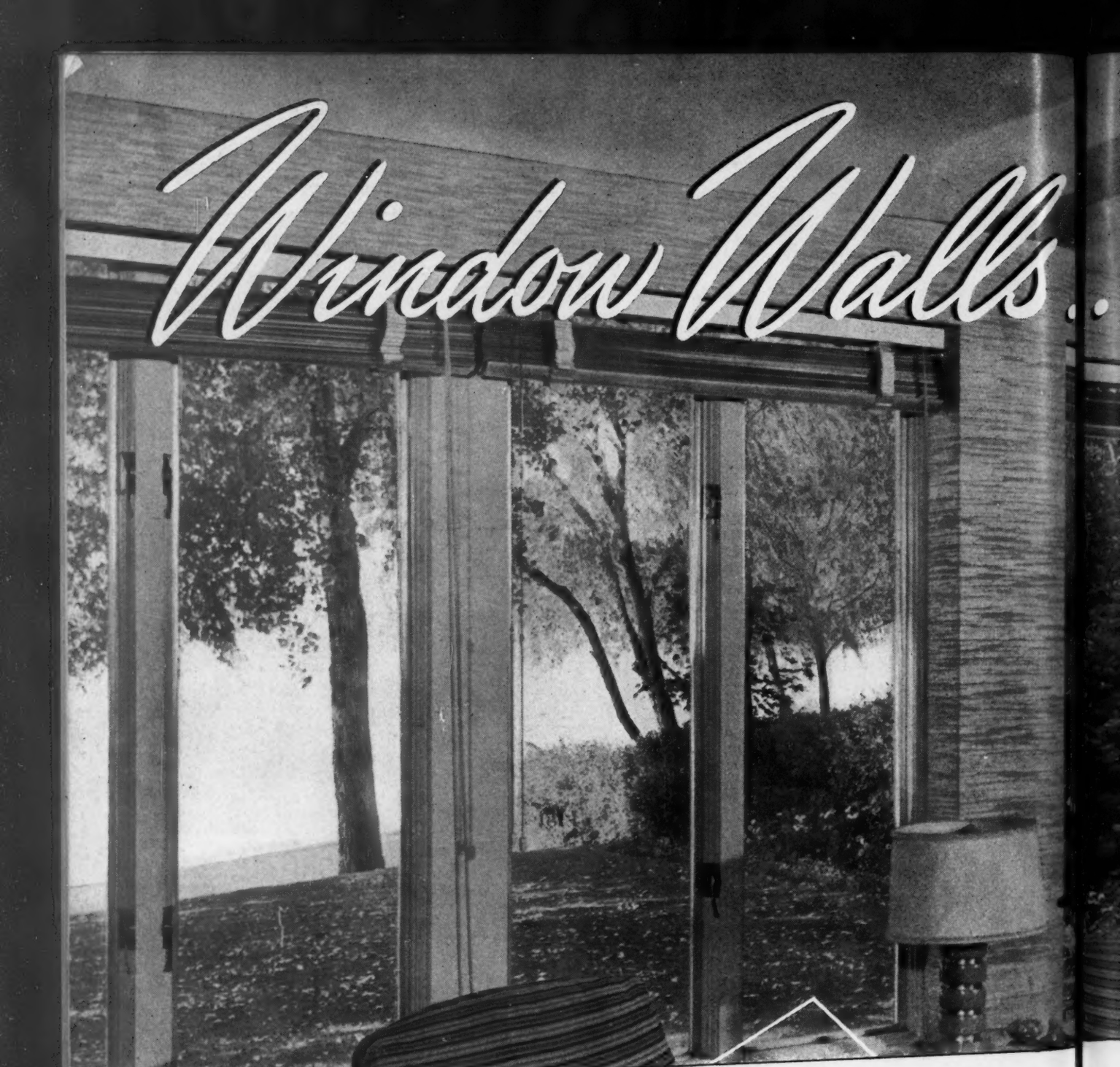

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Window Walls—oriented to bring the beauty of the outdoors to the comfort of the indoors . . . Window Walls—oriented to frame a living picture. Yes, window walls of Andersen Complete Window Units, arranged in expansive groups, will play a prominent part in the design of the 194X home.

To undertake successfully this larger role, it will be more essential than ever before that windows be specified which will truly function as integral parts of the home . . . smoothly operating, thoroughly weathertight, built to provide a lifetime of trouble-free service. This will require windows highly adaptable to many situations.

Andersen is aware of this larger scope for windows, and promises that as progressive architects give new functions to windows, Andersen window engineering will rise to the occasion.

In 194X, as in the past, Andersen Complete Wood Windows will be distributed through the regularly established channels of the millwork industry. For details, consult Sweet's architectural catalog, or write directly to the Andersen Corporation.

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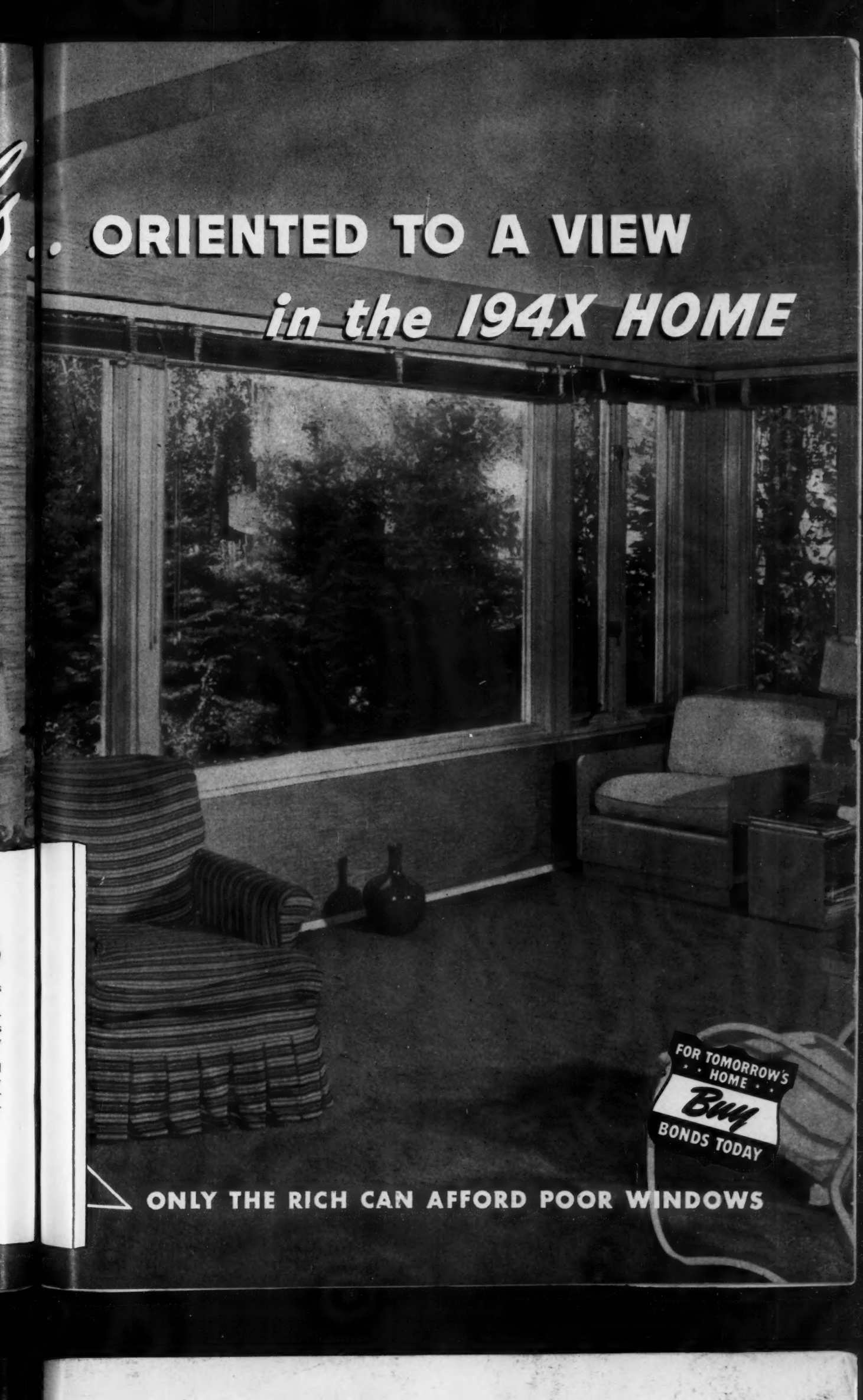
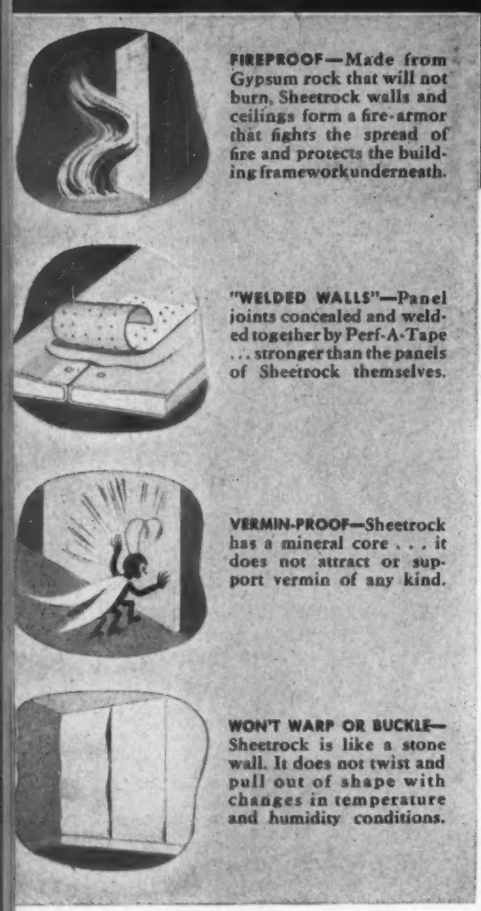

. . ORIENTED TO A VIEW
in the 194X HOME
FOR TOMORROW'S HOME
BUY
BONDS TODAY
ONLY THE RICH CAN AFFORD POOR WINDOWS

Decorative Harmony in Any Key . . .



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"WELDED WALLS"—Panel joints concealed and welded together by Perf-A-Tape . . . stronger than the panels of Sheetrock themselves.

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Choose the "Color-Key"—the texture—design and treatment—*then go ahead!* Over the smooth, even, ivory surface of Sheetrock*, a wide variety of finishes and treatments is possible.

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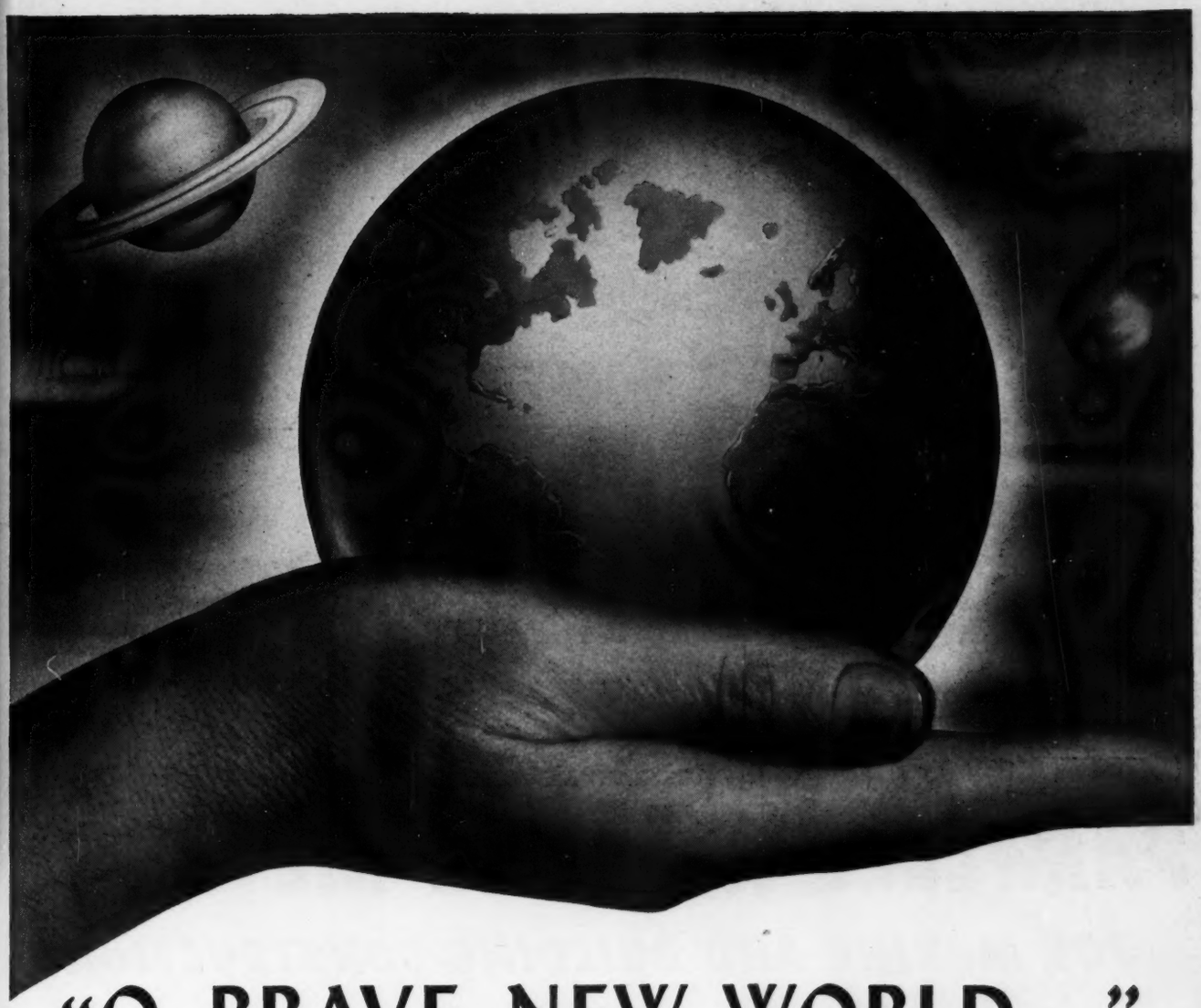

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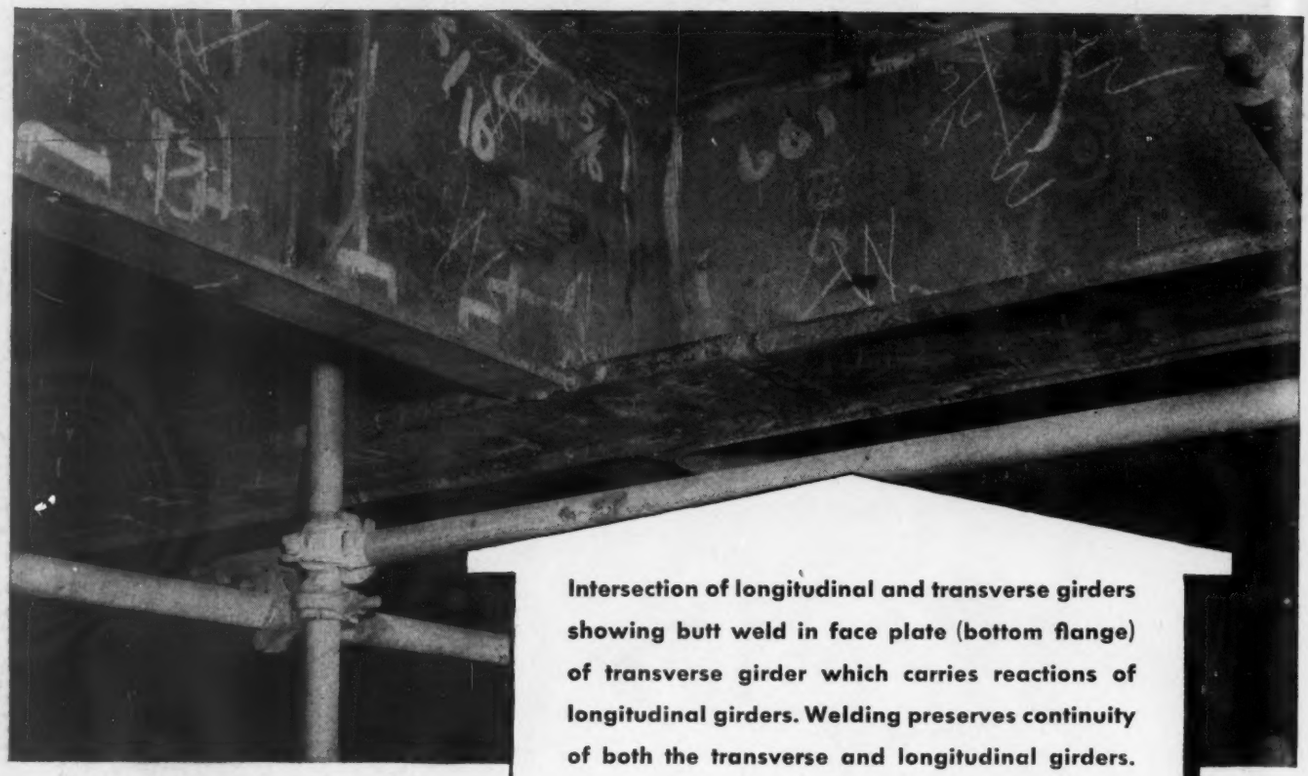

Intersection of longitudinal and transverse girders showing butt weld in face plate (bottom flange) of transverse girder which carries reactions of longitudinal girders. Welding preserves continuity of both the transverse and longitudinal girders.

PARALLEL WELDING METHODS

FOR MARINE AND BUILDING CONSTRUCTION

Hatch end beam supported by main pillar carries longitudinal stringers and girders, which in turn support deck beams.

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